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CIRCULATION ELEMENT



CITY OF ARROYO GRANDE GENERAL PLAN

1986

CIRCULATION ELEMENT

Amended July 12, 1988

CIRCULATION ELEMENT

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1. General Information	a. Number of subjects	100	
	b. Number of sessions	10	
	c. Number of trials	1000	
	d. Number of correct responses	800	
2. Performance Measures	e. Mean accuracy	80%	
	f. Standard deviation of accuracy	5%	
	g. Mean reaction time	250 ms	
	h. Standard deviation of reaction time	20 ms	
3. Individual Differences	i. Mean age	25 years	
	j. Standard deviation of age	5 years	
	k. Mean IQ	100	
	l. Standard deviation of IQ	15	
4. Experimental Conditions	m. Mean difficulty level	5.0	
	n. Standard deviation of difficulty level	1.0	
	o. Mean reward magnitude	100 units	
	p. Standard deviation of reward magnitude	20 units	
5. Statistical Analysis	q. Mean t-value	2.5	
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I. INTRODUCTION

A. Purpose And Legislative Authority

The Circulation for the City consists of traffic flow, compared to blood flow through the body or cash flow for a business. Circulation includes time, cost, convenience, safety, energy consumption, noise and air pollution generation.

Government Code Section 65302(b): A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan.

Since the circulation element was first required in 1955, transportation technology and needs in California have changed greatly, with the emphasis today on the development of a balanced, multi-model transportation system. The policies and plan proposals of the circulation element should:

- * Coordinate the transportation and circulation system with planned land uses;
- * Promote the efficient transport of goods and the safe and effective movement of all segments of the population;
- * Make efficient use of existing transportation facilities; and
- * Protect environmental quality and promote the wise and equitable use of economic and natural resources.

(1980, 1982 State General Plan Guidelines, OPR)

The County's Regional Transportation Plan (1985) contains a forecast of trip generation rates in Arroyo Grande for the year 1995. This forecasts for projected growth along Grand Avenue, South Halcyon Road, Traffic Way and in the North Hills area. The County's projected increases correspond generally to future growth anticipated by the City. This Circulation Plan reflects such growth projections. Development of new streets or substantial improvements of existing streets can induce more intensive land use which produces more traffic.

B. Relationships to Other Elements

The Circulation Element is related to other elements of the General Plan, particularly Land Use. Circulation infrastructure is designed to coordinate with the Plan's pattern of land use. The design of the circulation system both determines and is determined by the type and density of surrounding land uses, including other cities and the County.

The Circulation Element is also directly related to the social/economic development of the City. Socially, the circulation system is of primary importance. It has a major impact on the areas and activities which it serves; on community cohesion and on the quality of life. Economic activities require access for the movement of materials, products, customers and employees. Thus, the viability of the community's economy is affected by the circulation system. The Element also includes directions for protecting and enhancing the City's visual quality.

The circulation system is one of the major generators of noise. It has a direct impact on natural resources, particularly air quality. Factors of safety or seismic safety affect the location and design of circulation infrastructure, both in terms of structural safety and the need for evacuation and emergency routes.

II. PRIMARY CIRCULATION SYSTEM

A. Streets and Highways Classification

The classification system is based on functional categories used by Federal, State, County and regional agencies. The City recommends the designation of the street system within its boundaries to these agencies. Many of these recommendations are incorporated into the plans and programs of these agencies, and are a basis for grants and entitlements to the City.

Functional classification divides all streets and highways into several broad categories. These are Freeway, County Road, Arterial (major and minor), Collector and Local. Each classification has specific standards and criteria through which design and route are developed. These criteria include:

- Expected peak traffic load of existing and potential roads;
- Existing and potential development and land use;
- Potential physical improvements, such as road widening; and
- Special designations, such as scenic routes.

A discussion of road classifications follows in this Section (see Figure 3.1, Circulation). Classification is by listing on pages 2 to 5.

Type of Street Designated in the Element	City Standard and R/W Widths
Major Arterial	100-ft. minimum similar to A2
Minor Arterial	46- to 80-ft. minimum similar to City standards A1, A5, or A6
Collectors	64-ft. minimum similar to A3
Locals	52-ft. minimum similar to A4 or A7






The street standards should be considered the minimum widths to accommodate traffic requirements and street parking when appropriate. (Standards do not consider median construction, which requires additional width and right-of-way.) Furthermore, these standards should be used to apply primarily to new alignments, as they may conflict with existing facilities which are not programmed for replacement because of right-of-way constraints. (This statement would primarily apply to local streets developed in the early years of the City.)

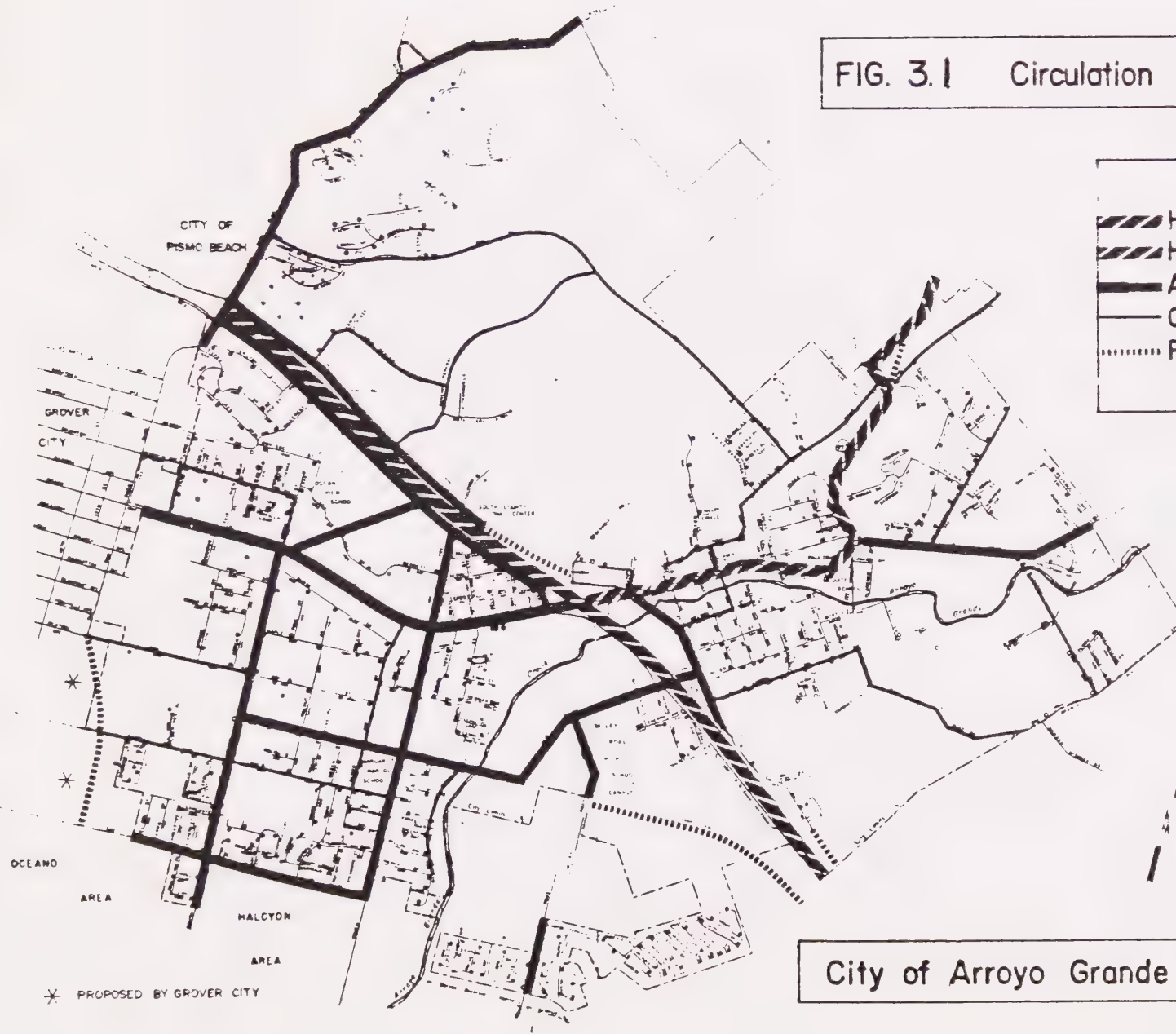
Standard minimum street sections are on file in the Public Works office and are in the Technical Appendix. These shall be the standards utilized; interpretations and/or recommendations regarding minimum street widths is the responsibility of the City Engineer with input from the planning process (see Appendix 7.1).

Freeways: Freeways are high-speed vehicle corridors with no crossings interrupting the flow of traffic, utilizing various forms of interchanges.

FIG. 3.1 Circulation

Legend

-  Highway 101
-  Highway 227
-  Arterial (Major, Minor)
-  Collector
-  Proposed



City of Arroyo Grande Circulation Element

* PROPOSED BY GROVER CITY

The City of Arroyo Grande is currently served by U.S. 101, a four-lane freeway, two lanes in each direction, which travels in a north-south direction. It provides access to the region and absorbs some of the trips in the community.

The utility of the freeway system depends on proper linkage to the rest of the circulation system. Land near interchange areas is highly prized because of accessibility and visibility. Interchanges are focal points for commercial activity and may encourage further development. The community must consider the substantial effect of the freeway on the entire circulation system, especially streets which interface with the freeway and frontage roads.

County Roads: County roads comprise the secondary network for the flow of traffic between major areas within the County. These are important "commuter" roads which serve to connect Arroyo Grande with traffic generators and destinations outside the City (e.g. San Luis Obispo, Lopez Lake), as well as rural outlying areas. County roads are;

Branch Mill Road
Carpenter Canyon
Corbett Canyon
Halcyon Road
Lopez Drive

Noyes Road
Oak Park Boulevard
Printz Road
Stagecoach Road
Valley Road

Arterials: Arterials are major streets carrying the traffic of local and collector streets to and from major traffic generators.

1. **Major Arterials** - Provide for the movement of large volumes of through-traffic between major traffic generators. The General Plan proposes that Grand Avenue be classified as a Major Arterial street. Traffic volume counts (1985), using standard minimum street section information, indicate that, at this time, only Grand Avenue warrants more than one lane in each direction. Parking and driveway access should be restricted on major arterials. A landscaped median divider is recommended to facilitate left turn movements and to improve the visual appearance of the arterial corridor.
2. **Minor Arterial Streets** - Provide for the movement of traffic to and from collector streets, major arterial streets and the freeway. Minor arterials are the foundation of an efficient, attractive and safe circulation system.

The following routes are proposed as Minor Arterial Streets:

West Branch Street (Frontage Road)	80-foot maximum
Barnett Street (Frontage Road)	Fair Oaks Avenue
N. & S. Halcyon Road (South of 101)	Traffic Way
El Camino Real (Frontage Road)	Valley Road
F. Branch Street	Huasna Road
Brisco Road	The Pike
South Elm Street	Oak Park Boulevard

Collectors: The collector street moves traffic between local and arterial streets. Collector streets serve efficiently with little direct access to parcels and property.

Typically, a 44-foot pavement on a 64-foot right-of-way is sufficient in residential areas. With such widths, smooth traffic flow may be regulated by stop signs on local streets. This cross-section will permit two moving lanes of traffic, on-street parking, sidewalks, and public utility easements, as well as street tree wells on each side in both residential and commercial and industrial areas. Streets could accommodate four lanes of traffic if on-street parking were removed and the streets restriped.

This element proposes the following streets to be classified as Collector Streets:

Alder Street*	James Way*
Ash Street*	Le Point*
Branch Mill Road*	Mason Street*
Brighton Avenue*	Nelson Street*
East Cherry Street*	Printz Road*
Carino Mercado*	Ranch Road*
Coach Road*	Rancho Parkway*
Corbett Canyon Road*	Stagecoach Road*
Courtland*	Talley Ho Road*
Equestrian Way*	Wesley Street*
Ferroll Road*	Woodland Drive*

* Denotes sections of street are below City standards (1985).

Local Streets: Local streets provide direct access to land uses, and are generally residential. Therefore, it is important to eliminate through-traffic except in commercial and industrial districts. Consequently, local streets are often designed to curve, turn or cul-de-sac and to carry as little traffic as possible.

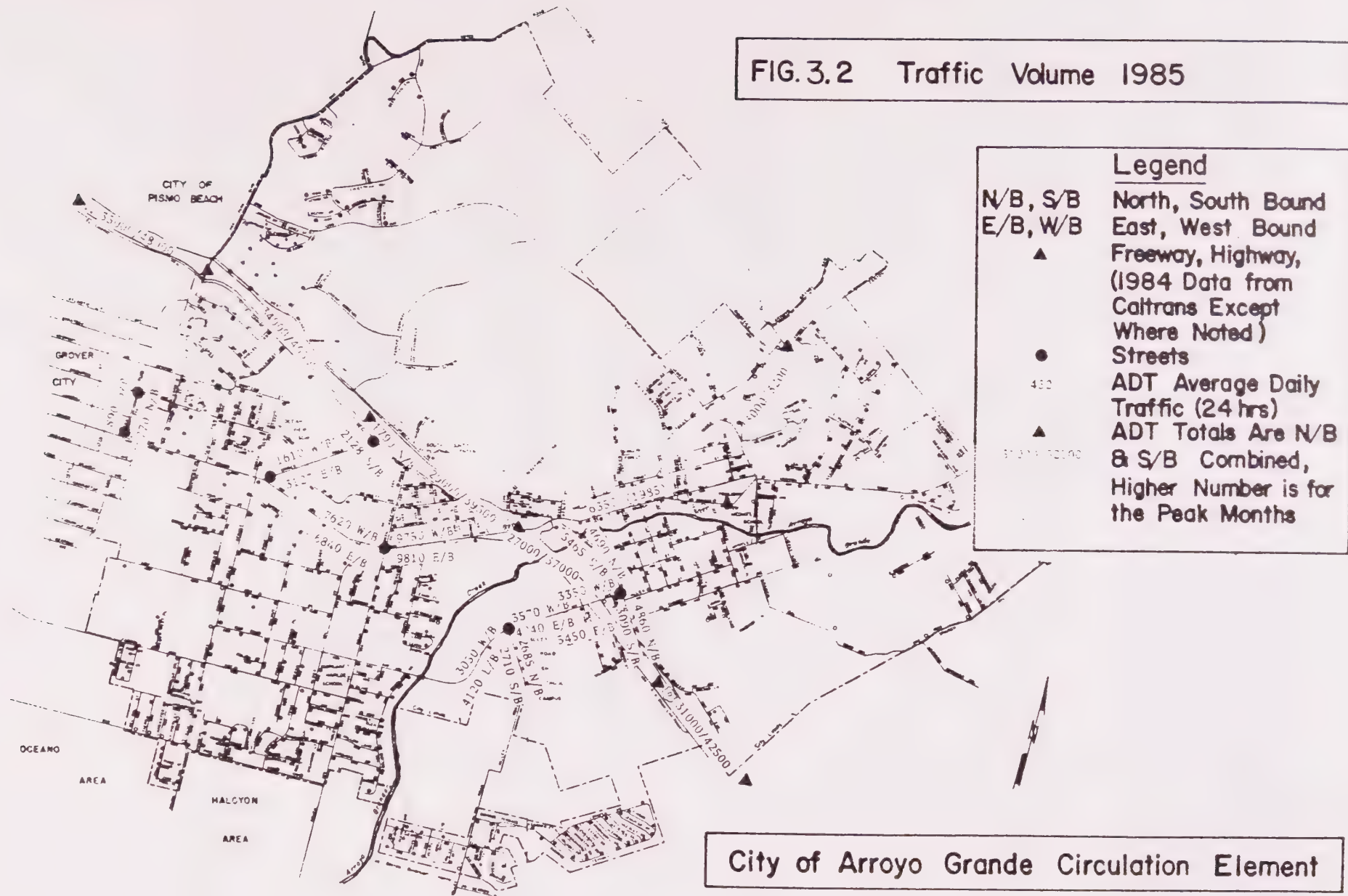
The purpose is to provide internal circulation and both primary and secondary access. As subdivisions are developed, they should provide a minimum of two points of standard access for safety reasons and for emergency vehicles. Design of local streets should consider police surveillance and fire fighting ability, and must be built to City standards.

While recognized as an integral part of the circulation system, the location of local streets is flexible and varies with the nature and needs of the land use as the area is developed. Therefore, they are not precisely located in the General Plan. The North Hills area is presently designated Planned Development (PD). The circulation pattern proposed for the area is included on the development plans adopted by ordinance by the City.

A second method of evaluating and classifying streets is by volume: Volume classification dictates that a certain street width and number of lanes are needed. In order to establish design standards for streets which are specifically applicable to Arroyo Grande, certain local criteria such as existing and future land use, as well as present traffic volumes on streets and highways must be taken into account (see Appendix 3.2 for SDAG Traffic Generation Rates).

The following method is used nationally for establishing volume-determined design standards. The City of Arroyo Grande began using Step 1. in 1985, but has not yet instituted use of this method at this time. More traffic data will be needed in the 1990 Circulation Element review. Traffic volumes for intersections shown in Figure 3.2 can be updated and new traffic volumes for major and minor arterial intersections can be compiled and added, as well. Future coordination with other cities is important.

FIG.3.2 Traffic Volume 1985



1. **Determine Present Traffic Volumes**
2. **Analyze Future Land Use**
3. **Calculate Future Traffic Volumes**
4. **Calculate Street Widths**
5. **Design Peak Hour Volume**

From American Association of State Highway Officials

(See Appendix 3.3, Level of Service, LOS) (See Figure 3.2, Traffic Volume, 1985)

All designated streets (Figure 3.1) will have **increased traffic** with development in Arroyo Grande, Pismo Beach and Grover City. Development in County lands will also impact Arroyo Grande; east in rural canyon lands, south in Nipomo and the Nipomo Mesa, and west in Oceano. Continued development and use of resort facilities will increase traffic on the major and minor arterial streets. Assessment of parking, traffic and the impact of traffic will be necessary in the next review period (1990).

B. Traffic Controls

Traffic signals are used to control the flow of traffic at intersections in an urban circulation system. Figure 3.3, Signalization Map, is a plan for the City showing both existing and proposed traffic signals at intersections. Proposed signals will be installed as warrants are met and funding becomes available. Intersection control is being handled adequately with four-way stops and channelization at some low volume intersections.

Traffic signals are currently paid for with State of California gasoline taxes and General Fund revenues. Future funding for signals is proposed to include revenue generated from development fees on both a City-wide and site-specific basis.

C. Truck Routes

Highway 101 is the principal north/south corridor for trucks in the area. Trucks should be able to reach commercial and industrial areas in the community without being forced to travel through the residential or congested areas where the presence of trucks on the road system is undesirable. The truck route plan is intended to adequately meet the needs of the trucking industry. The City should continuously evaluate and update the system of truck routes and truck parking (see Figure 3.4, Truck Routes). Consideration of the regulation and limitation of truck movement and parking is an important part of the Circulation Element. Parking of large trucks on City streets is regulated. Trucks must be parked overnight on private property in industrial or commercial areas; no overnight parking is permitted in residential areas. The only overnight, on-street parking for large trucks is on El Camino Real, between North Halcyon Road and Bennett Avenue.

Hazards to the community involve nuclear waste transport, chemical transport, explosives and toxic waste transport.

All nuclear wastes are stored on-site at Diablo Canyon Nuclear Power Plant; no Diablo nuclear wastes are being transported at this time. Designation of appropriate transport routes for nuclear wastes is a Federal (NRC) responsibility. The City does not control transport of nuclear material or wastes, from any source, on highways.

FIG. 3.3 Signalization

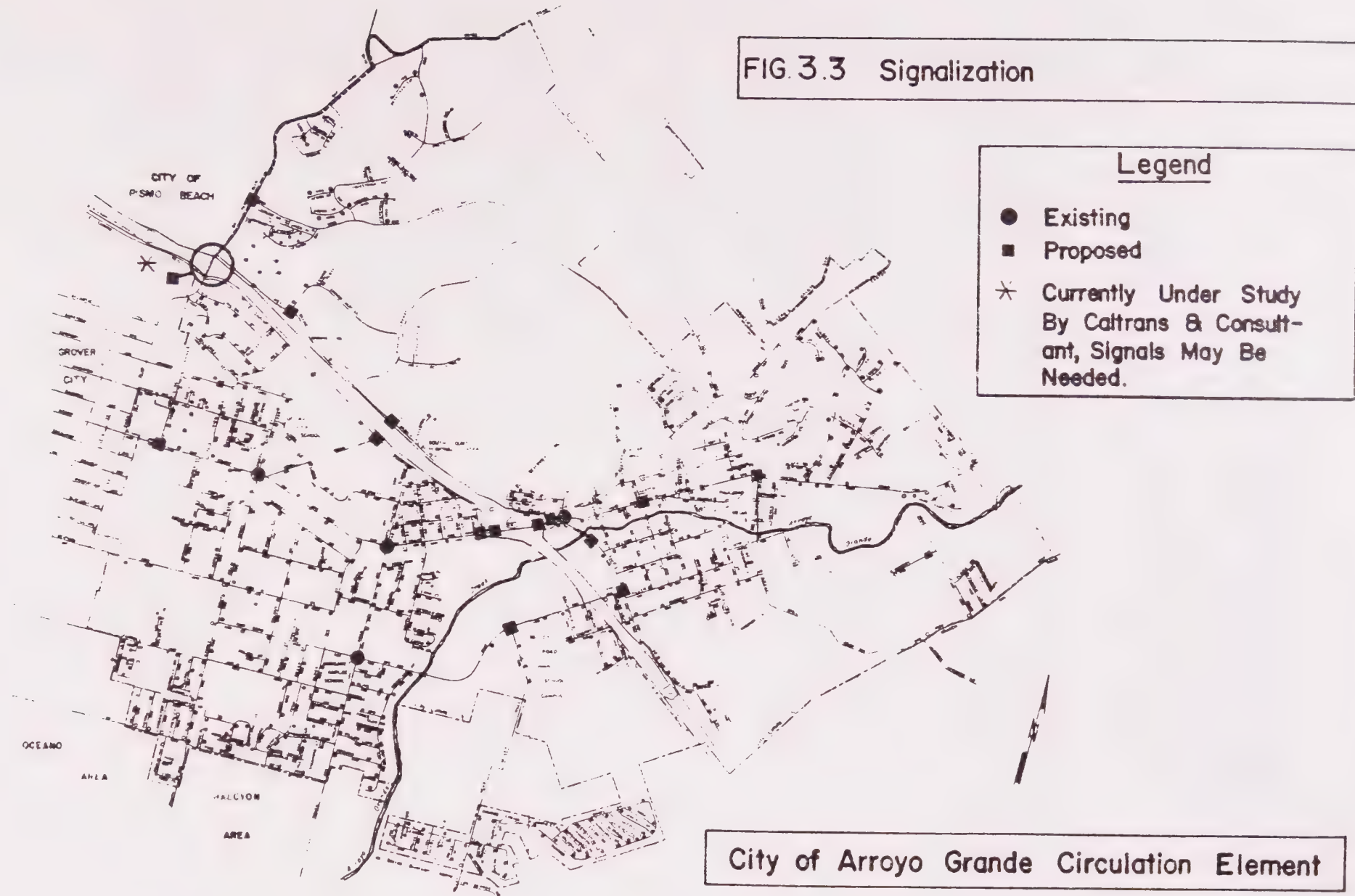
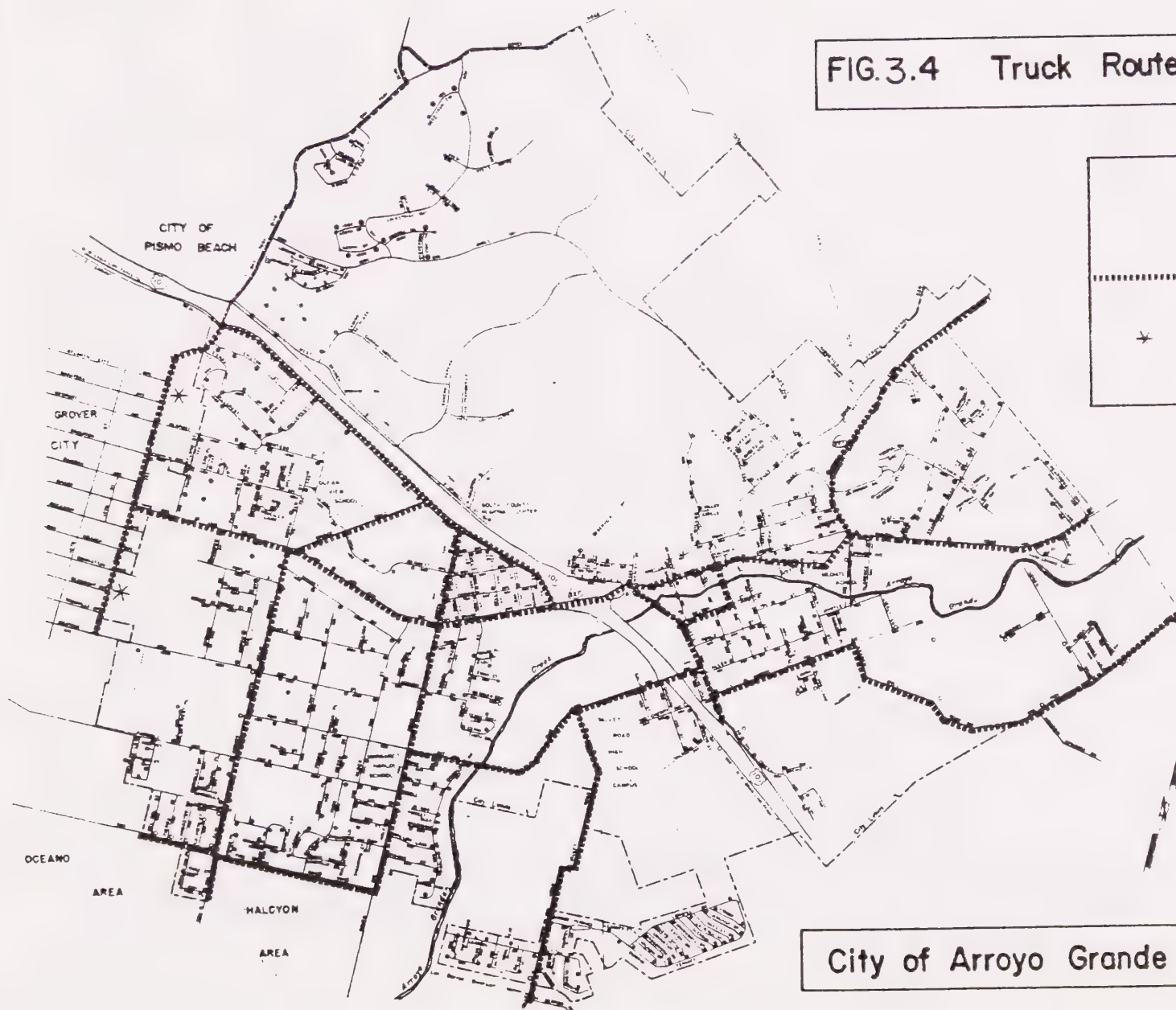


FIG.3.4 Truck Routes

Legend

- Truck Routes
- * Denotes Route In Grover City



City of Arroyo Grande Circulation Element

Explosive products are regulated by the California Highway Patrol. Supertruck routes are the concern of CALTRANS and relate to 1982 Federal legislation (\$.05 gas tax). State legislation is currently pending regarding hauling of hazardous wastes and designation for this transportation. All potentially hazardous materials, including agricultural chemicals, currently use Highway 101 (see Safety and Seismic Safety Element, Section 7.0).

Assessment of truck traffic, parking and traffic impact will be necessary in the next review (1990).

D. Scenic Highway/Scenic Routes

A California Scenic Highway System was established in 1963 in conjunction with Federal legislation. CALTRANS administers the program and State scenic highways are designated by "California Golden Poppy" signs. No routes in Arroyo Grande have official scenic highway status. A Scenic Highway Element is no longer a mandated General Plan element; deletion occurred through State legislation, 1983.

The principal points of entry into the City, the City's "gateways," are important with regard to preserving and enhancing visual amenities. If first impressions are most important, then gateways should receive considerable attention, particularly in consideration of the importance of tourism to the economic base of the City. The City should exercise street design control over new development at these gateways to improve architectural coordination and quality. Special sign controls and landscaping requirements and establishment of future utility undergrounding districts by the City should focus on these gateways.

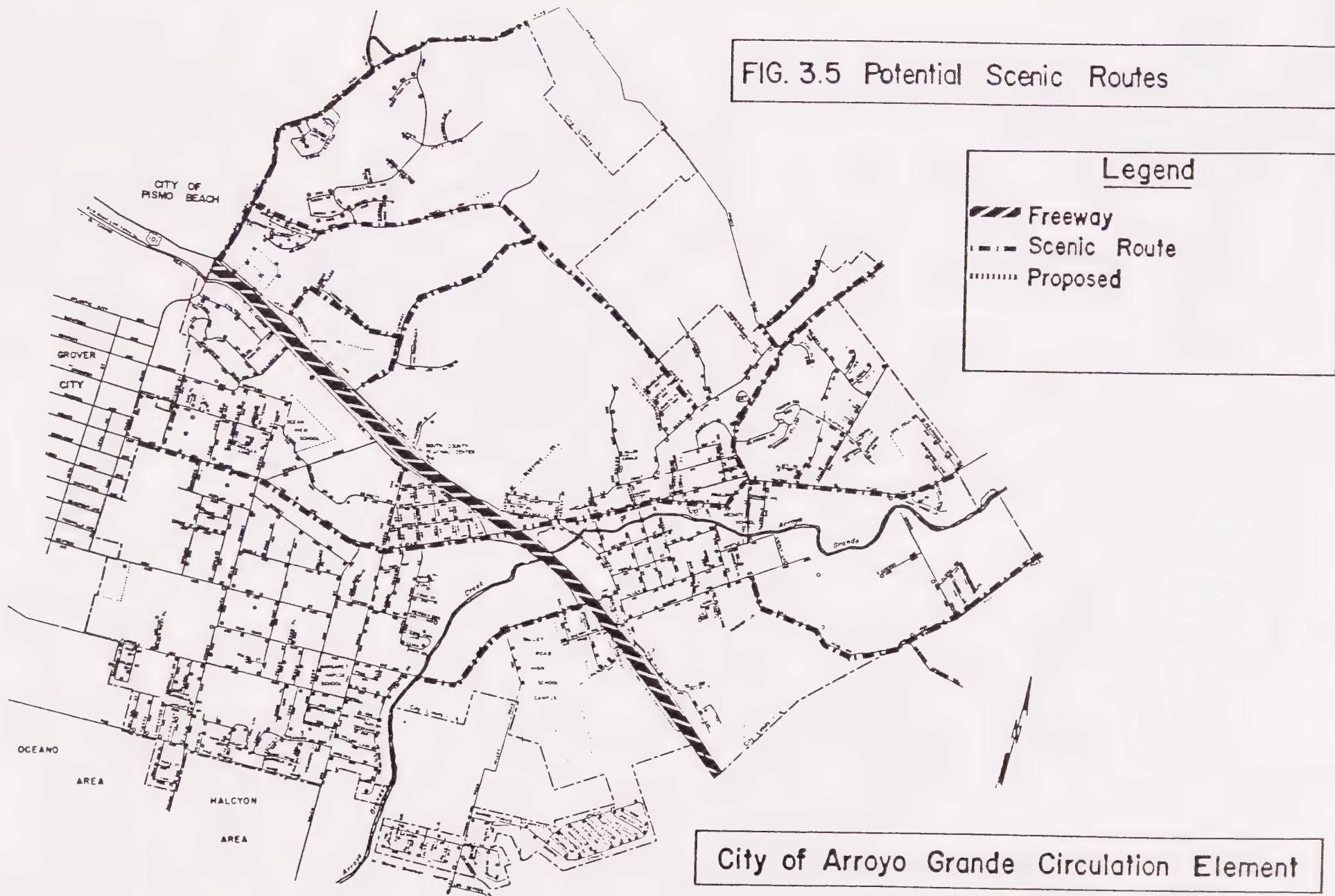
The City should continue to cooperate with groups such as Campfire Girls and Boy Scouts to work on beautification projects. The Parks Department will continue the Memorial Tree Program and special plantings, such as Gingko trees by Strother Park. Extra consideration by the Park Department for Oak Park Boulevard, Traffic Way, West Branch Street and El Camino Real will continue.

Land use controls through the City's General Plan and zoning ordinances are the most important tool for protecting and enhancing the visual quality of scenic routes in Arroyo Grande. Appropriate land use categories for scenic areas will help protect these areas from inappropriate development. Zoning regulations provide a mechanism to ensure that visual amenities are considered in development by addressing bulk, height, setbacks, landscaping and scenic easements for view corridors. The streets which are deemed to be Scenic Routes can be enhanced by both private and public action. Streets in both rural and urban settings can benefit from careful decisions in the review process (see Goals section, Goal E).

Designation of scenic routes implies a judgement of the visual qualities as special and worthy of attention. Because many factors contribute to the scenic character, a set of criteria is needed to measure these factors and the scenic importance of specific routes. Such criteria may be used for evaluating visual resources of both the natural and urban environment (see Appendix 3.5 for Proposed Scenic Routes and Criteria).

Figure 3.5 delineates the proposed scenic routes for the City of Arroyo Grande. These rural and urban streets enhance the City's image and permit scenic views of the countryside. Further discussion of scenic routes is located in the Technical Appendix.

FIG. 3.5 Potential Scenic Routes





III. ALTERNATIVE TRAVEL MODES

Alternative travel modes include all methods and means of moving people other than by private vehicles. Buses, taxis, bicycles and pedestrian traffic are included and other innovative methods may be considered in the future. Alternative modes both complement and substitute for the automobile.

A. Pedestrian Circulation

Arroyo Grande was, for many years, a walking town where children walked to elementary and high school, where people walked to work, to church, to shop. Today, children walk to school and many people walk to nearby shopping. The Village merchants encourage people to walk and shop.

Provision of safe, convenient movement of school-age students is a major concern. There is a need for City and school cooperation regarding adequate and safe walkways. Sidewalks need to be provided for a 1 mile, a 1-1/4 mile, and a 1-1/2 mile radius for elementary, intermediate and high school, respectively (see Figure 3.6, Pedestrian Circulation for Schools). The first priority of pedestrian circulation shall be to serve both private and public schools. Walkways to serve shoppers and the general public shall take second priority.

Consideration of special problems of the handicapped is also important. Easy access ways to public facilities and through-edges (i.e. to parking, bus stops, residential areas, etc.) need to be provided. Ramped street corners permit easy sidewalk access for wheelchairs, baby strollers and shopping carts. Caution should prevail when considering any elevation changes among walkways. Concern for needs of traffic and parking has produced good streets and parking areas, but the physical needs and desires of all people who walk, either from the car or from home, have been neglected.

Shoppers, too, need consideration. Problems exist for walking due to discontinuous sidewalks, sidewalks in poor condition due to age, lack of sidewalks or sidewalks which are neighborhood limited without connections to destination points. Problems exist in parking areas in which walkways have not been provided.

The City provides continuous programs relating to sidewalks; handicapped ramps, installation of sidewalks in older areas (through the 1911 Improvement Act), and replacement of sidewalks in poor condition within a neighborhood.

B. Bicycle Circulation

A flexible way to travel to school, work or shopping is by bicycle. People are bicycling on a daily basis due to interest in health and physical fitness, concern for the environment, plus cost.

Senate Bill 244 (Statutes of 1975) established the California Bikeways Act. The Act included provisions requiring the State Department of Transportation to establish "recommended minimum general design criteria for the development, planning, and construction of bikeways..." (see Appendix 3.4).

The most important effort that could be undertaken to enhance bicycle travel would be improved maintenance and upgrading of existing roads that are used regularly by bicyclists. This effort requires that increased attention be given to the right-hand portion of roadways where bicyclists are expected to ride. An attempt should be made to improve the width and quality of the surface and to maintain the right-hand

portion in a condition suitable for bicycle riding.

Also important is the consideration of bicycle needs in the implementation of major construction projects and normal safety and operational improvements. For example, in constructing new roads, adequate width should be provided to permit shared use by motorists and bicyclists. When resurfacing, full shoulders should be resurfaced, as well as traffic lanes. When planning a roadway edge stripe, an attempt should be made to provide sufficient room outside the stripe for bicyclists. When considering the restriping of roadways for more traffic lanes, the impact on bicycle travel should be assessed. These efforts, to preserve or improve an area for bicyclists to ride, can benefit motorists, as well as bicyclists (see Appendix 3.5).

The City Bikeway System is comprised of standard roads to minimum grades with shoulders wide enough to accommodate bikes and/or on-street parking. In commercial areas, off-street parking is required with development/redevelopment. The City Council has adopted policies (1985) which restrict and remove all parking on Grand Avenue between Halcyon Road and the western boundary; no on-street parking in this area will remain after 1990. It is necessary to recognize that a bicycle rider has all the rights and responsibilities of an automobile driver.

If bicycles are to be used extensively, secure bicycle storage at common destination points (e.g. office buildings, shopping centers, schools, etc.) is necessary. The lack of secure bicycle parking can be a severe deterrent to bicycle use. Once a bicycle facility is constructed, the responsibility continues; proper maintenance is as important as design; improper maintenance will curtail the use and effectiveness of a bikeway.

Figure 3.7, Bicycle Circulation, illustrates a plan which is recommended to accommodate bicyclists in Arroyo Grande, and to tie into the regional bikeway system recommended in the County's Regional Transportation Plan (RTP) (1985) and Adopted Pismo Beach Bikeway. The Plan was developed in consideration of the riding preferences and abilities of cyclists of all ages and with respect to likely destinations such as schools, commercial and recreational facilities and scenic roadways. Improvements to these recommended routes should maximize their safety value and conform to the State design standards (see Appendix 3.5).

The first priority for bike routes is connections to schools, public and private. Also, first priority routes serve the South County Library, the South County Regional Center and the Arroyo Grande Community Center.

Priority One routes are:

- Crown Hill, Crown Terrace, Le Point Street, and McKinley Street to serve Paulding School
- Mason Street (north of East Branch Street), Le Point Street and Tally Ho Road to serve Paulding School
- East Branch Street, between Mason Street and Huasna Road, to serve Paulding School
- Huasna Road to serve Paulding School
- Wesley and Larchmont to serve Valley View Academy and Arroyo Grande Community Center
- Mason Street, Allen Street and Traffic Way to serve Central Coast Christian School
- Fair Oaks Avenue to serve Arroyo Grande High School and Lighthouse Christian School

FIG.3.7 Bicycle Circulation

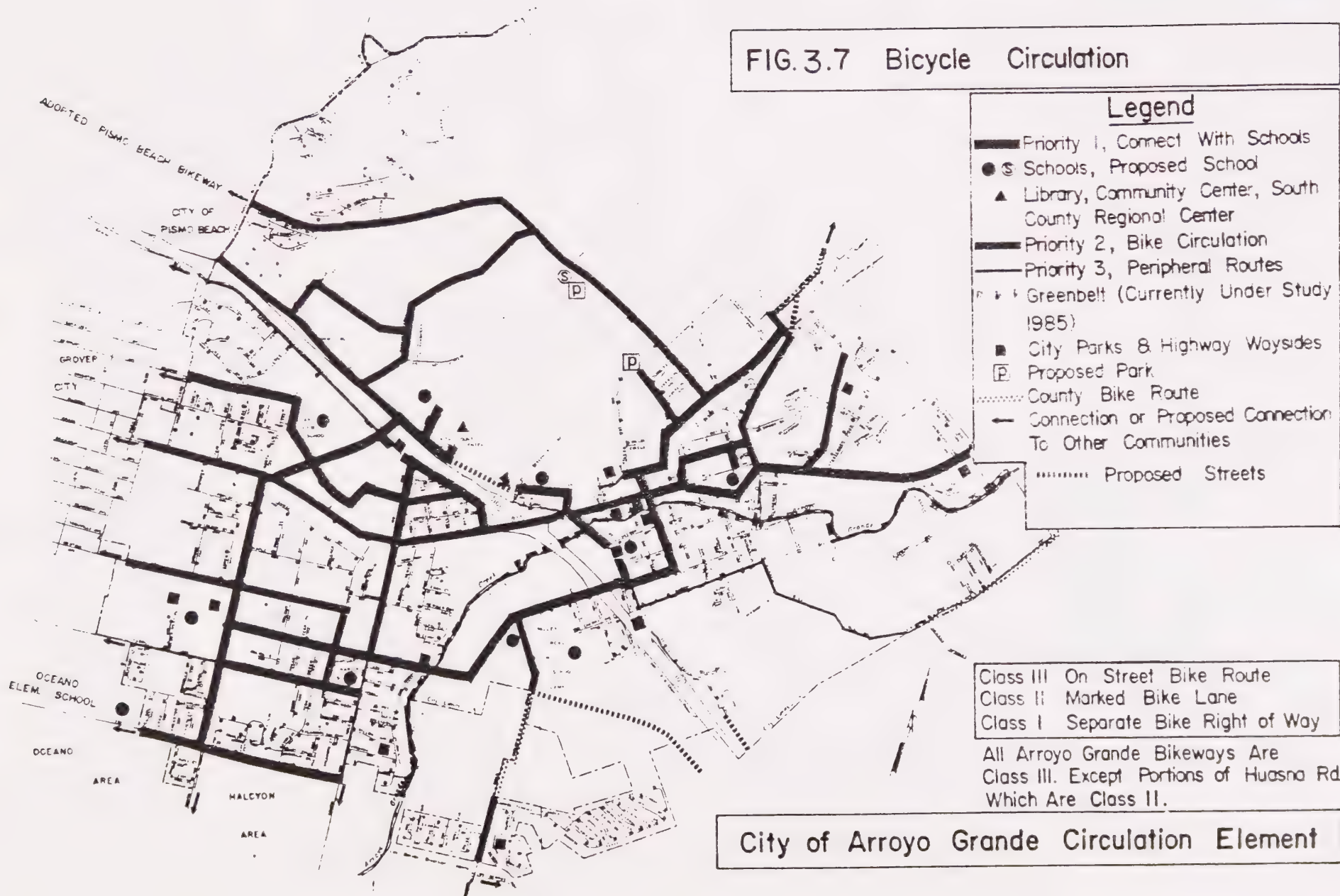
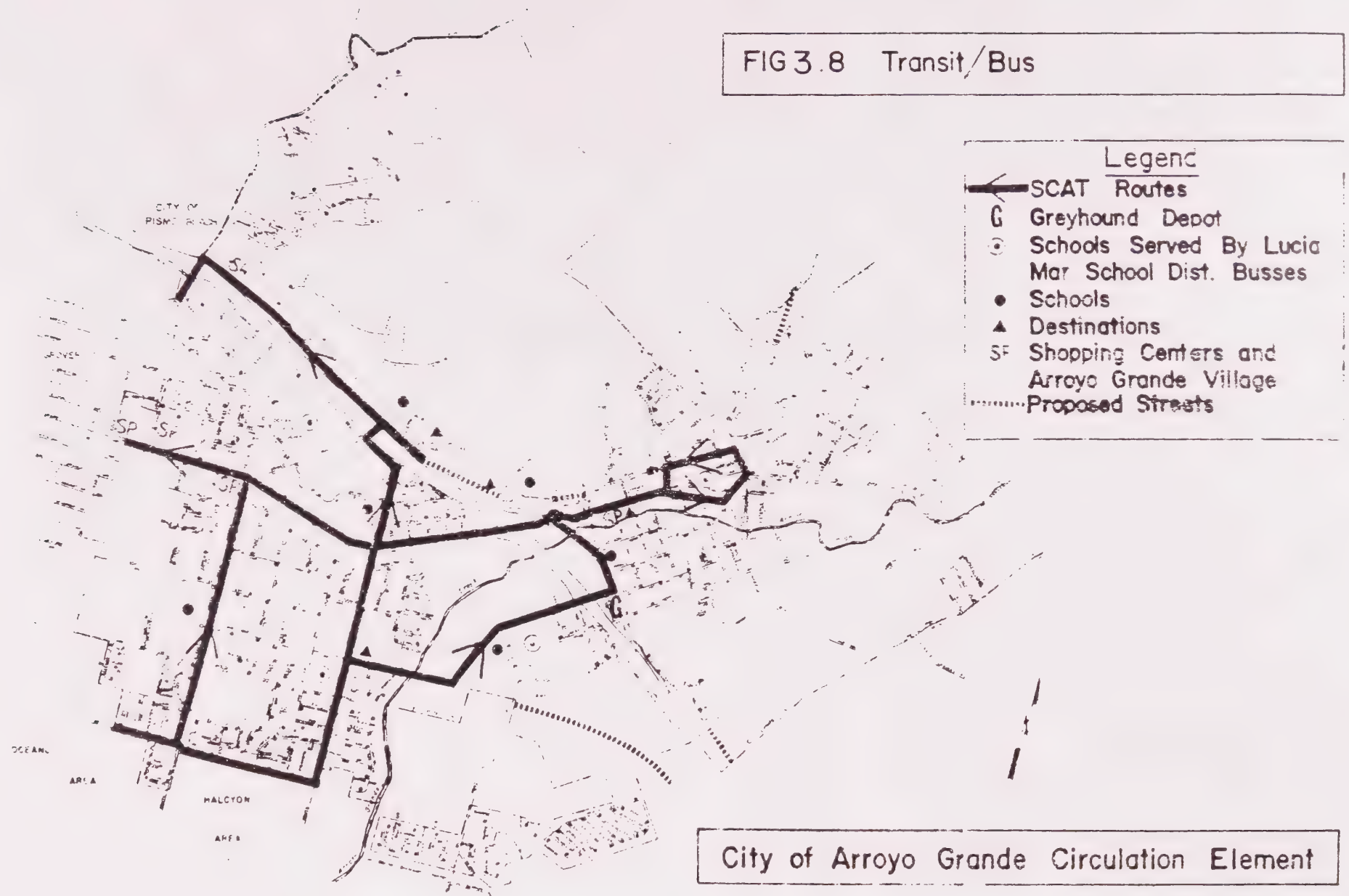


FIG 3.8 Transit/Bus



Newport Avenue, Montego Street, Linda Drive and Bennett Avenue to North Halcyon Road to serve Ocean View School
 South Elm Street, Fair Oaks (partial) and Farroll Avenues to serve Margaret Harloe and Lopez Schools
 South Elm Street and The Pike to serve Ocean School (West of City limit line)
 Brisco Road, North Halcyon Road, Barnett Street, El Camino Real (partial) and West Branch Street to serve St. Patrick's School, the South County Library and South County Regional Center
 Traffic Way (northbound only), between the Highway 101 exit, north to Fair Oaks Avenue, will serve bicyclists exiting the CALTRANS bike portion of Highway 101
 Grand Avenue and East Branch Street, between Barnett Street and Traffic Way (southbound only), will serve bicyclists entering the CALTRANS bike portion of Highway 101

The City needs to sign these first priority routes to alert drivers to the presence of school children.

Second priority routes will complete patterns to schools and serve the public for general bike circulation, including commuting.

Priority Two routes are:

Grand Avenue	Highway 227, between Printz Rd. and Huasna Rd.
East Branch Street	Bennett Ave., between N. Halcyon Rd. and Barnett St.
Valley Road	South Halcyon, partial
Ash Street	James Way, Rancho Parkway and Camino Mercado
Oro Drive	W. Branch St., from Oak Park Plaza to the South
(Terra de Oro Park)	County Library and Regional Center

Third priority routes will complete the bicycle circulation system and coordinate with the County bikeways. All schools will be served, as will most parks.

Priority Three routes are:

Branch Mill Road	S. Halcyon Rd. (partial)
Corbett Canyon	Le Point St., from Tally Ho Rd. to Nevada St.
El Camino Real	Tally Ho Rd.
Farroll Avenue (partial)	Via La Barranta

These routes will serve bicyclists of all ages and will serve major destinations. Improvements to these recommended routes will maximize safety and conform to the State design standards (see Appendix 3.5).

C. Ridesharing

The Federal Highway Administration started giving serious consideration to the concept of ridesharing in 1967. The energy crises plus a desire to reduce air pollution and urban congestion together have maintained the ridesharing program.

The San Luis Obispo Regional Ridesharing Program was authorized by the San Luis Obispo Area Coordinating Council in October, 1979. The program got underway in early 1980. Operation of the program was assigned by the Area Council to the San Luis Obispo County Engineering Department. A full-time ridesharing manager coordinates the program. The program is funded by CALTRANS. The program assists in the formation of carpools and vanpools, and works toward the development of other ridesharing activities where appropriate. It is reasonable to expect a 10% increase in carpooling.

D. Transit/Bus

Transit system studies should consider the needs of riders, especially the young, elderly, handicapped and others. At the present time, the existing modes and levels of public transit appear adequate for current demand (see Figure 3.8, Transit/Bus Map)

1. South County Area Transit System (SCAT)

South County Area Transit System (SCAT) operates two buses plus a reserve vehicle, five days a week.

SCAT is operated through a Joint Powers Agreement (JPA, 1978) by the County Board of Supervisors, Arroyo Grande, Grover City and Pismo Beach. SCAT routes 2, 3 and 4 in Arroyo Grande are shown on Figure 3.8. Arroyo Grande Hospital, all shopping centers and all public schools, except Ocean View, are served by these routes; the South County Regional Center and the County Library are also served. A 5-year transit plan for the system has been adopted.

2. Regional Services/Greyhound

The Greyhound Bus Company makes thirteen trips per day to and from Arroyo Grande. Greyhound serves other regional cities and urban areas, including Los Angeles and San Francisco. The combined Greyhound and SCAT systems constitute the community and regional transit systems for the entire south San Luis Obispo County. Greyhound and the SCAT service interface at Traffic Way and Fair Oaks Avenue, at the Greyhound depot. The adopted Regional Transportation Plan (RTP, 1985) includes a regularly scheduled, fixed route, public bus service between Arroyo Grande and San Luis Obispo as a recommendation.

3. School Buses

The Lucia Mar School District has 33 buses which serve elementary and intermediate schools in the District; approximately 10% of the riders are Arroyo Grande children. There is concern regarding adequate bus parking space at specific school sites.

The County Superintendent of Schools provides bussing via vans for students to special education programs in San Luis Obispo. These include students attending multi-handicapped, physically handicapped, and language and hearing impaired classes.

4. Runabout (Regional Handicapped System)

San Luis Obispo Regional Transit Authority has established an exclusive public transit system for the transit disabled. "Runabout" provides services for handicapped people on a regional basis and is fully utilized. "Runabout" service has four vehicles, plus a backup vehicle, each equipped with a hydraulic lift and facilities to accommodate wheelchairs. The vehicles are managed by a driver who helps passengers board and disembark. Centrally dispatched from San Luis Obispo City, the service is open on a space-available-priority basis. Established service priorities are: Medical visits first, then government business, or educational matters such as social security, IRS, schools, special training, then grocery shopping, and lastly recreational outings. San Luis Obispo Area Coordinating Council estimated that 347 adults needed service in 1984 in Arroyo Grande.

E. Other

Arroyo Grande can actively encourage the public to use alternate forms of transportation which, in turn, will both improve circulation and reduce traffic congestion and air pollution.

The nearest general aviation airport facility is the San Luis Obispo County Airport. A County airport is located in Oceano, serving as both a general aircraft and recreational aircraft facility. Additional airport facilities are located in Santa Maria.

Currently, no railroads serve Arroyo Grande; there is a passenger terminal for AMTRAK in San Luis Obispo connecting the major metropolitan areas on the West Coast. Goods are shipped via train to and from this area, two passenger trains travel to Seattle and Los Angeles, daily.

Port San Luis, which serves both commercial and sport fishing and provides facilities for pleasure boating, is nearby.

A number of car rental and recreational rental companies serve the area. Individuals use mopeds and motorcycles, however, rentals are not available. Two taxi companies serve the South County and San Luis Obispo area, churches and private schools provide some private bus transportation. There is one private equestrian trail in Arroyo Grande at this time.

The San Luis Obispo region contains an extensive network of pipe and utility transmission lines - aqueducts operated by various water agencies, natural gas, electrical, and the telephone transmission lines operated by the utility companies, and petroleum product pipelines under a number of private firms and governmental agencies (see the Safety and Seismic Safety Element 7.0) (see the Public Facilities Appendix 9.0).

IV. ISSUES

Order does not denote time frame or priority; many of these issues are long-term and/or multi-jurisdictional (see Figures 3.9 and 3.10).

A. Issues of Concern

1. Oak Park Boulevard/Highway 101 Interchange

Reconstruction of this interchange is needed. Future planned developments in the Oak Park and Rancho Grande tracts, as well as extensive commercial and residential development occurring in adjacent Pismo Beach and Grover City will increase the impact on this intersection. Final decisions are scheduled for 1988 regarding this intersection.

2. Oak Park Boulevard Connection

City and County plans specify completion and widening of Oak Park Boulevard south of Highway 101 to connect Highway 101 and Highway 1. While most of this corridor lies within Grover City, Arroyo Grande will be responsible for development of a small segment south of the City Corporation Yard, south of Ash Street (see Figure 3.1). Additional traffic moving across the City will impact Arroyo Grande.

Development of Oak Park Boulevard at Highway 101 and north of the freeway will require a multi-jurisdiction approach involving Arroyo Grande, Pismo Beach and San Luis Obispo County.

3. State Highway 227 Realignment Study

This route is regionally significant in that it connects Arroyo Grande and San Luis Obispo. Highway 227 passes through the City's core commercial Village and carries traffic to Huasna Road headed for Lopez Lake, as well. Forecasts show the traffic increasing from the present level.

The Area Council petitioned the California Transportation Commission to conduct a Special Study for identification of a realignment corridor for the bypass and for initiation of right-of-way acquisition proceedings. The City has requested the study examine and recommend interim solutions such as signalization, channelization and parking restrictions on the existing Highway 227 corridor.

The City will continue to request a special study by CALTRANS for realignment of the Highway 227 bypass corridor. The possibilities suggested in the past have been (1) connection with El Campo at Highway 101, and (2) south of the residential area with connection to Traffic Way. The City will request a study by CALTRANS for a segment realignment of Highway 227 north of Corbett Canyon and for the entire corridor. Proposed realignment routes are shown on Figures 3.9 and 3.10 (RTP, 1985).

4. West Branch Street

The City and the RTP both call for the completion of West Branch Street to act as a frontage road for Highway 101 between the Oak Park Boulevard interchange and the Village and E. Branch Street. West Branch will be extended southeast to the Village, but the extension shall not connect with Larchmont Street.

5. Grand Avenue Improvements

Grand Avenue, the City's major arterial, carries a heavy volume of traffic. Safety problems relate to present on-street parking and numerous ingress/egress points. Proposals to reduce accidents, improve traffic flow and provide a safe street are:

- a. Re-stripe street
- b. Eliminate on-street parking (Highway 101 to Halcyon Road, Halcyon Road to westerly City limits) as per Resolutions 1546 and 1881, 1985
- c. Restrict ingress/egress points
- d. Provide landscaped median

FIG. 3.9 Major Work Involving Caltrans

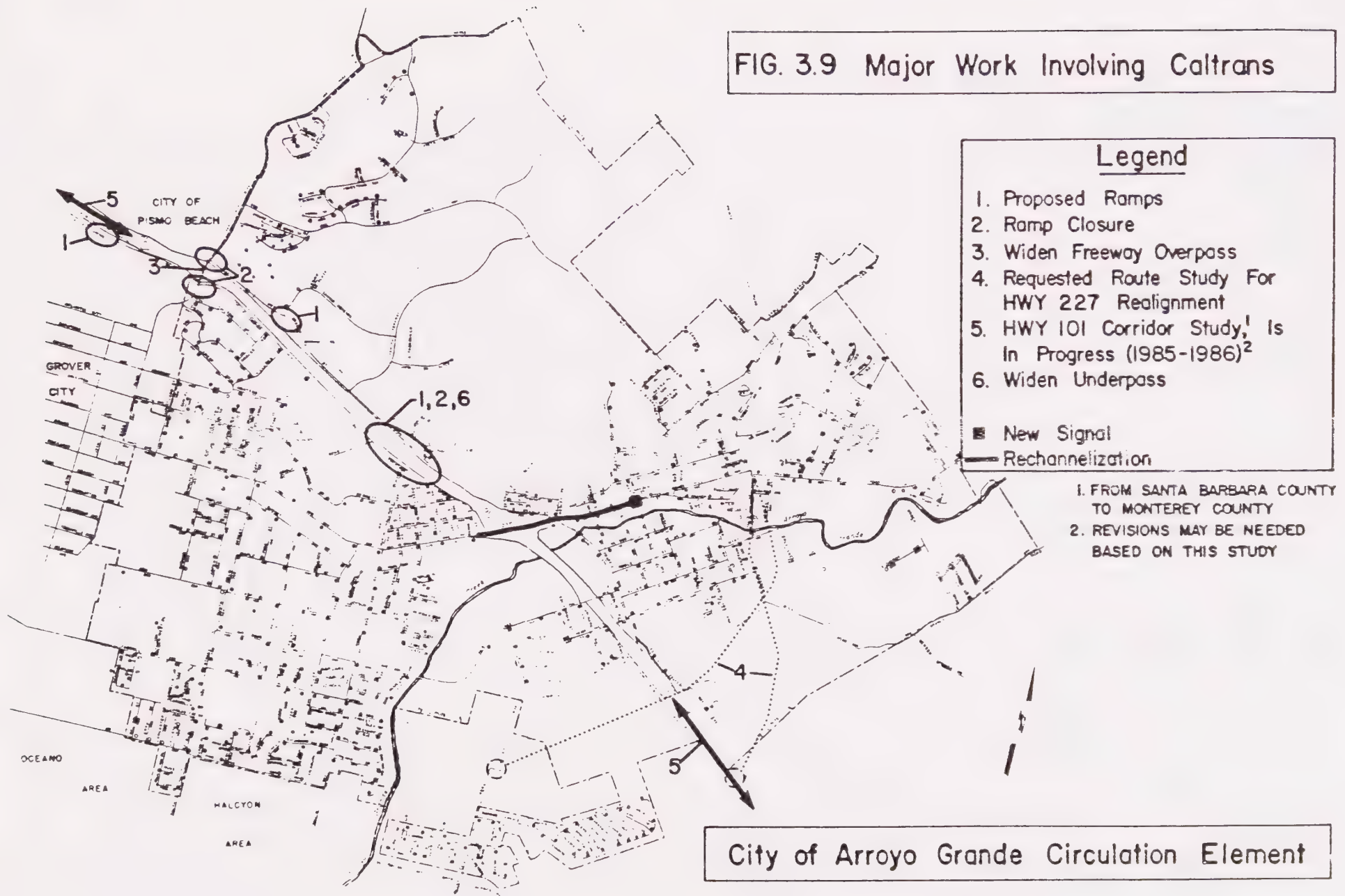
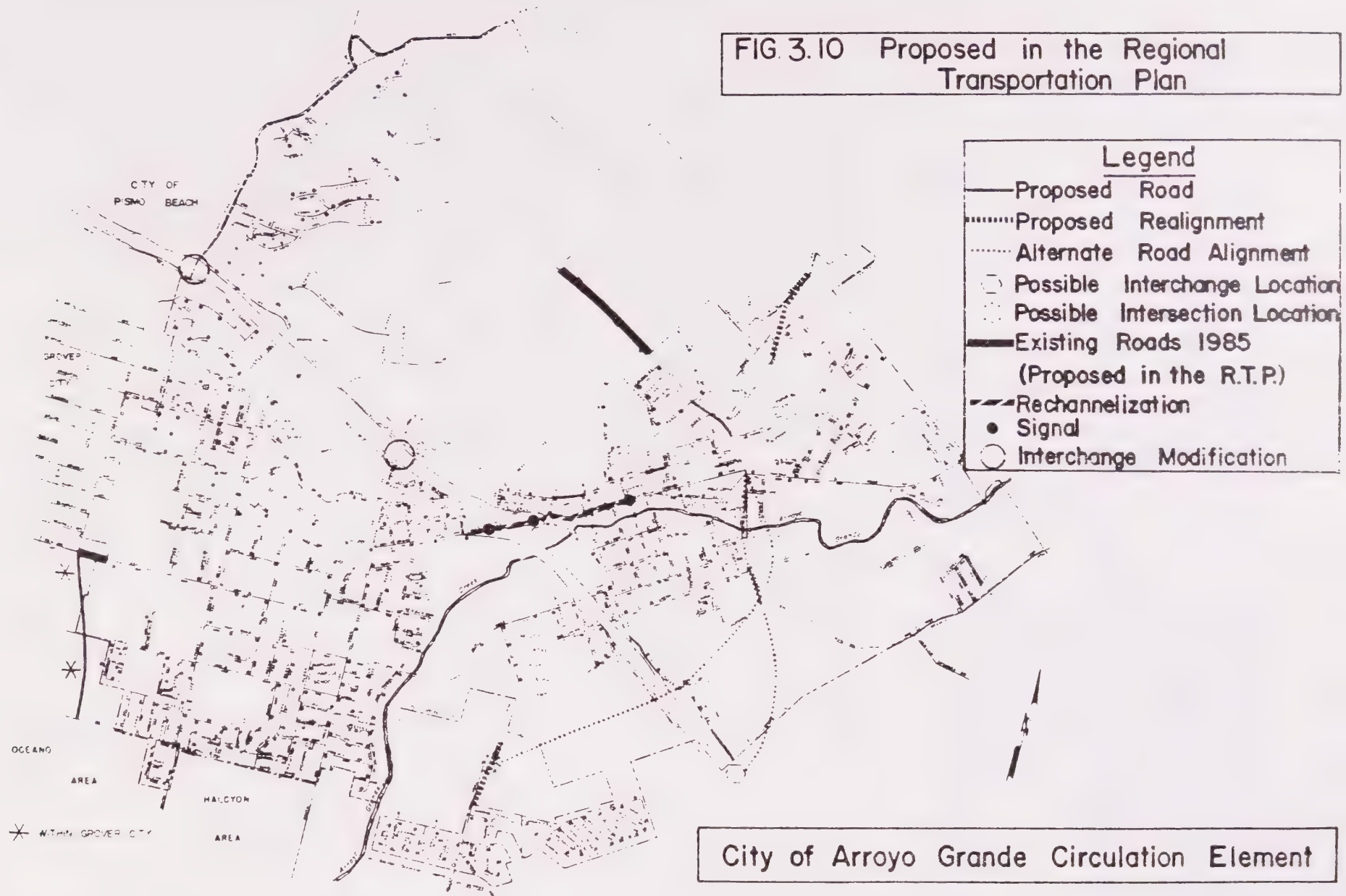


FIG. 3.10 Proposed in the Regional
Transportation Plan



(Note: San Luis Obispo Area Coordinating Council has requested a Highway 101 Corridor Study for the entire length of 101 from Monterey County to Santa Barbara County; the study may result in improvements to Highway 101, such as widening or interchange. This study is scheduled for completion in 1986 [see #6, 7, 8 and 9].)

6. Traffic Way Interchange Reconstruction

7. Grand Avenue/Highway 101/Barnett Street, Possible Signalization

8. Highway 101 Corridor Reconstruction

The RTP recommends reconstruction of Highway 101 between Brisco Road and Fair Oaks Avenue to upgrade to full freeway standards and provide improved access capacity.

9. Brisco Road Study

10. Valley Road

The RTP recommends straightening and realignment of the two right-angles south of the high school; limited straightening has occurred. Extension of Valley Road from Fair Oaks Avenue to Grand Avenue has been deleted from the Regional Transportation Plan. Frontage road traffic can be handled parallel to Highway 101 by West Branch Street and Traffic Way, with less environmental damage and little or no grading. No extension on Valley Road north of Fair Oaks Avenue is proposed in the Circulation Element. The City will retain an easement on Grand Avenue opposite Bell Street. Extension of Valley Road would impact and remove agricultural lands from the City inventory.

11. Grand Avenue and Brisco Road Intersection

12. Extension of South Traffic Way to City Limits

13. Ranch Road from Valley Road, East and South to City Limits

Ranch Road shall remain as a proposal until such time as development occurs.

14. East Branch St. Curb, Etc., Improvements (Mason St. to Huasna Road)

15. Courtland Street at Grand Signal

16. Station Way at Traffic Way Signal

Le Point Street:

17. Le Point Street shall terminate on the west end at Nevada Street. Le Point between Nevada and Miller shall be developed with 40 ft. of parking between curbs with sidewalk and permitted parking on the south side only.

18. Vehicular access to the rear portions of commercially zoned parcels on the north side of Branch Street, between Nevada Street and Wesley Street, shall be further developed with twenty (20) to twenty-five (25) feet wide private driveways interconnecting all or most private properties between Wesley and Nevada Streets. The alignment and connection point of such drive(s) to Wesley Street shall be determined by the Planning Commission after a review and study of planned land uses in the area. Private drives shall connect Wesley Street with Nevada Street, but driveway connection with Wesley Street shall not connect directly with Larchmont Drive.

19. No bridge construction shall take place over Tally Ho Creek within the Le Point Street right of way.

B. Traffic Accidents

Review of automobile accident records for Arroyo Grande since 1983 reveals that most accidents on the City's roadways are the result of driver negligence. City accident records indicate that only 1.6% of all accidents from 1982 to 1984 involved bicycles. Of these 20 accidents, 11 took place along Grand Avenue and Branch Street and at intersections. Records also show the major causes for bicycle-related accidents in Arroyo Grande were related to illegal actions by bicyclists.

Intersections along Grand Avenue are frequent sites of accidents. On-going removal of on-street parking should reduce the accident rate on Grand Avenue. New business access should be via group parking areas. Arroyo Grande will continue to work for solutions to problems in the Oak Park Boulevard/Highway 101 area; this is an area of multijurisdictional responsibility.

C. Air Quality

Good air quality is one reason people have chosen to reside in or visit San Luis Obispo County. With development, air quality deteriorates.

Air pollution is best controlled by reduction at the source. Reduction may be achieved by these means:

1. Reduce the miles traveled;
2. Reduce the number of vehicles;
3. Control emissions and quantity of emissions;
4. Centralize businesses, thus reducing travel;
5. Regulate land use with low home-to-job commuting;
6. Provide good circulation with few conflict situations, minimize stop signs;
7. Minimize traffic delays, keep signals properly timed; and
8. Encourage auto alternatives.

New Source Review is the only procedure among this County's local development policies which specifically analyzes the air quality impacts of new development. The Air Pollution Control District (APCD) and its Hearing Board regulate proposed development which will directly add pollutants to the air basin. The APCD has prepared an Air Quality Attainment and Maintenance Plan (under revision), to achieve and maintain acceptable air quality within San Luis Obispo County. The policies of this Plan are intended to achieve and maintain acceptable air quality standards within San Luis Obispo County. This would involve determination of the ultimate and incremental quantities of development that can be accommodated by the County's air basin without exceeding Federal standards.

D. Resort Traffic

Traffic is a problem for Arroyo Grande; much of the traffic is seasonal and resort related. Traffic crosses Arroyo Grande to the three major resort areas, Pismo Dunes State Vehicular Recreation Area, Lopez Lake and the beach north of the City. Arroyo Grande Village is becoming more resort oriented and the economy of the City reflects this.

Other cities that are resorts or that are adjacent to resorts have the same problem; a stable population and an enormous but fluctuating seasonal population. The need is for arterial streets and highways which serve the larger seasonal population, although they are excessive for the stable hometown population.

Resort: Highway 101, Grand Avenue, East Branch Street and Huasna Road are the major resort routes. Traffic west on Grand Avenue and east on East Branch Street is heaviest in the summer and during weekends from spring to fall. Three-day holiday weekends are the most impacted by resort traffic. Highways 101 and 227 have notable differences of average daily traffic (ADT) during (summer) peak and non-peak months (see Figure 3.2).

Solutions include signals at off-ramps from Highway 101, reduced parking on these corridors, traffic systems management, left-turn lanes, consistent law enforcement of speed limits and sufficient traffic lanes to accommodate the seasonal population. None of these will solve the problem alone, though the concerted effort will help to mitigate the impact of resort traffic.

E. Emergency Routes

Emergency routes are those streets used by emergency vehicles to traverse the City. Police vehicles, fire trucks and emergency vehicles, plus ambulances traveling to Arroyo Grande Hospital or regional medical centers have precedence over other vehicles. It is essential that streets be in good repair and open at all times for emergency use. Bridges and overcrossings need periodic inspection for safety and seismic safety of the structures.

Completion of West Branch Street will facilitate fire safety; presently, fire equipment vehicles are limited to crossing Highway 101 only at Fair Oaks Avenue and Grand Avenue. Brisco Road and Oak Park Boulevard may be reached only by freeway; the issue is response time to the entire City (see Safety and Seismic Safety Element 7.0).

V. GOALS, POLICIES AND PROGRAMS

GOAL A: TO PROVIDE FOR SAFE AND EFFICIENT VEHICULAR MOVEMENT

Policy A: Monitor the operation and performance of the street system.

Program 1: Maintain and update a functional classification of the street system reflecting land use and traffic patterns.

Program 2: Establish a data collection program for the street system to include a physical inventory, traffic volumes and accident reports.

Policy B: Maintain roadways and traffic signals in good condition.

Program 1: Develop a priority system for physical improvements based on demonstrated needs according to the collected data on physical conditions, traffic volumes and safety reports.

Program 2: Respond quickly to traffic signal breakdowns and sign damages and losses.

Policy C: Improve traffic capacities of streets.

Program 1: Control and coordinate major access points.

Program 2: Restrict on-street parking on major and secondary arterials when needed to provide additional street capacity.

Program 3: Optimize traffic signal performance to increase traffic flow.

Policy D: Improve traffic safety.

Program 1: Review the location and frequency of accidents and develop specific site improvements.

Program 2: Consider changes in speed limits, parking and turning restrictions to enhance safety.

Policy E: Provide for truck, emergency vehicle and resort traffic.

Program 1: Truck and resort traffic routes will be designated to discourage traffic on local residential streets.

Program 2: Emergency vehicle routes and links between the hospital, fire and police stations will be identified.

Program 3: Design standards for local streets will provide adequate access for fire and police department services.

GOAL B: PROMOTE ALTERNATIVE TRAVEL MODES, INCLUDING TRANSIT, PEDESTRIAN AND BICYCLE CIRCULATION SYSTEMS

Policy A: Provide for adequate and safe alternative access to schools, parks and shopping areas within the City.

Program 1: City improvements of bikeways, sidewalks and pedestrian accessways will first consider access to destination points.

Program 2: Maximize the involvement of public agencies and the private sector in the provision of transit services and alternative access.

Policy B: Encourage the continued development and expansion of local and regional public transit systems.

Program 1: Review and comment on proposed changes to the South County Area Transit (SCAT) bus system.

Policy C: Encourage bicycle transportation.

Program 1: Provide and maintain adequate shoulders of City streets where bicycle traffic is heavy and there are safety concerns.

Program 2: Consider standards to provide opportunities for bicycle lanes on future road construction.

Program 3: Integrate local bikeway planning with regional plans.

Program 4: Encourage the provision of bicycle support facilities at major bicycle destination points.

Program 5: Continue and expand bicycle safety education programs.

Policy D: Improve and maintain the system of sidewalks and crosswalks.

Program 1: Prioritize sidewalk improvements within fiscal restraints.

Program 2: Provide handicap access where most needed.

Program 3: Provide crosswalks at signalized intersections.

Program 4: Require sidewalks in all new public and private developments.

Policy E: Encourage the continued improvement of the public school bus system.

Program 1: Review parking conditions and work cooperatively with Lucia Mar School District to provide adequate school bus parking.

GOAL C: COORDINATE POLICIES FOR LAND DEVELOPMENT AND CIRCULATION

Policy A: The planning, alignment and improvement of the street network will reflect the proposed land use pattern of the General Plan.

Program 1: The functional classification of streets will identify a street's purpose and the standards of improvement necessary to accommodate anticipated traffic demand.

Program 2: In establishing priorities for street improvements, the potential of effects on land use and traffic patterns will be reviewed.

Program 3: Through-traffic will be discouraged in residential neighborhoods without inhibiting the movement of residents. This may be accomplished by traffic diversions, stop signs, or the street design or alignment.

Program 4: A system of collector streets will be established to provide easy access from local streets to commercial centers, schools and other high-traffic generators.

Program 5: Adopt street plan lines for arterials and collectors to protect rights-of-way for future street improvements.

Policy B: Review the impact of land use proposals on the circulation system.

Program 1: Development proposals will be reviewed according to the provisions of the zoning and subdivision ordinance to insure that adequate access, on-site circulation, parking and loading areas are provided.

Program 2: Require developers to provide mitigations to the adverse impacts of a proposal on the existing street system. This may include necessary street improvements, traffic signs or signals.

Program 3: Roads created in subdividing or land parceling will be designed to tie into existing and anticipated road systems.

Program 4: Development review will include visibility requirements at intersections.

Policy C: Insure there is sufficient parking in the Village central business district.

Program 1: Review parking conditions and work with the Parking and Business Improvement Board.

Policy D: Establish the circulation system as a positive element of community design.

Program 1: Continue to implement the Community Tree Program.

Program 2: In the development review process, include consideration of the visual aspects of a development from roadways, including Highway 101. Aesthetic consideration shall include architectural compatibility and landscaping.

Program 3: Continue implementation of the utility undergrounding program.

Program 4: Consider the construction of landscaped medians in commercial areas to direct traffic flows and provide a more scenic roadway.

GOAL D: COORDINATE LOCAL TRANSPORTATION PLANNING AND ADMINISTRATION WITH THE ACTIVITIES OF OTHER GOVERNMENT AGENCIES AND CONCERNS OF LOCAL CITIZENS AND BUSINESSES

Policy A: Publicize major transportation issues and solicit public input.

Program 1: Notify the public through press releases, use public service radio announcements, contact local organizations and provide library copies.

Program 2: Conduct public hearings on proposed major actions and notify the public through mandated public notices.

Policy B: Coordinate transportation planning with regional and local plans.

Program 1: Insure compatibility of proposed actions with transportation plans of adjacent cities and San Luis Obispo County.

Program 2: Review regional impacts of proposed local improvements.

Program 3: Coordinate with CALTRANS.

GOAL E: DESIGN AND IMPLEMENT THE CIRCULATION SYSTEM TO PROTECT NATURAL FEATURES, CONSERVE ENERGY, AND AVOID AIR AND NOISE POLLUTION

Policy A: Designate local scenic routes and enhance and protect their scenic qualities.

Program 1: Control the quality of improvements through design standards and review.

Program 2: Investigate public or private agency acquisition of land, development rights or open space easements for areas of outstanding scenic value.

Program 3: Develop roadside rests and observation points on scenic rights-of-way.

Policy B: Protect natural features.

Program 1: Minimize the loss of prime agricultural land to road construction.

Program 2: Investigate public or private agencies' acquisition of land, development rights or open space easements for agricultural areas.

Program 3: Minimize grading for new roads and improvements, conserve prominent land forms and minimize tree removals.

Program 4: Maintain air quality within Federal ambient air quality standards.

Program 5: Evaluate circulation improvements and traffic controls as to their effect on air and noise pollution.

Policy C: Conserve energy.

Program 1: Provide for bikeways, pedestrian ways, and public transit as energy conserving, non-polluting alternatives to auto travel.

Program 2: Provide for smooth traffic flow and a compact urban pattern to maximize efficient movement between residential, commercial and public areas.

**PROJECT IMPLEMENTATION
(1985 - 1990)**

ONGOING PROJECTS

Traffic Flow: Continue maintenance of streets and other public works. Place, replace and remove street signs as needed.

Signals: Maintain signals as necessary. Provide new signals as necessary.

Safety: Continue safety features such as left-turn lanes, channelization, crosswalks. Continue to monitor visibility factor for development at major intersections. Continue to provide continuous sidewalks, curbs and gutters.

Sidewalks: Continue sidewalks, curb and gutter maintenance.

Crosswalks: Maintain crosswalks.

Handicapped: Continue program to provide curb ramps. Continue "Runabout" transportation program.

Bicycles: Continue program for striped and signed Class III Bike Routes. Continue to develop new roads with full shoulder for bicycles.

Bicycle Education: Continue use of Police Department materials regarding bike safety and registration. Continue home and school safety education.

Transit: Continue to cooperate with SCAT. Continue maintenance of bus stops.

Design Improvements: Continue Community Tree Program. Continue program of undergrounding utility equipment. Require sign ordinance compliance. Continue consideration of visual and architectural compatibility from roadways for new developments.

Parking: Continue maintenance of parking district. Continue street parking restrictions. Limit ingress/egress for business centers.

Proposed Roads: Continue cooperation with government agencies.

Notification: Continue mandated public notice via newspapers and notification by mail.

SPECIFIC PROJECTS

Traffic Flow: Restripe and redirect channelization from Barnett and Grand Ave. to Mason St. and E. Branch St. (Caltrans).

Signals: Install signal at Mason St. and E. Branch St. (Caltrans). Install signal at Station Way.

Safety: Install new ramps, north and south of Oak Park Blvd. (FY 1987-Caltrans). Ramp closure, Oak Park Blvd. (FY 1987-Caltrans). Widen freeway overpass 101/Oak Park Blvd. (FY 1987-Caltrans). Provide new left-turn lanes, center medians on Grand Ave., Oak Park Blvd. and Traffic Way. Install new ramps, close ramps at Brisco Rd. Provide new underpass 101/Brisco Rd.

Sidewalks: Add and improve sidewalks in this priority listing:

1. Near schools, public and private (radius of 1, 1-1/4, 1-1/2 miles for elementary, intermediate and high school, respectively).
2. Library, parks, community centers.
3. Shopping centers.

Crosswalks: Stripe crosswalks at new signalized intersections, on arterial and collector streets. Add a crosswalk on E. Branch St. (by car corral).

Handicapped: Require special parking in developments.

Bicycles: Add and improve bikeways in this priority listing:

1. Near schools, public and private (radius of 1, 1-1/4, 1-1/2 miles for elementary, intermediate and high school, respectively).
2. Library, parks, community centers.
3. Shopping centers.

Bicycle Education: "Bike Rodeos" at schools by the Police Department.

Transit: Add new bus stops, benches, trash containers as necessary.

Design Improvements: Prepare design standards for City entryways. Complete undergrounding on Traffic Way and extend to Grand Ave.

Parking: Install parking areas as necessary in the parking district, with pedestrian accessways. Analyze specific locations for truck parking.

Proposed Roads: Design proposed City roads, per Fig. 3.1. Establish per Council direction.

Notification: Mail agendas, draft and final reports to South County Library to coincide with Commission and Council mailings. Use radio spots.

This section should be reviewed annually by the City Manager and the appropriate department directors. The entire element shall be reviewed and updated in years ending in 0 and 5.

CIRCULATION ELEMENT

List of Sources

1975 General Plan, Circulation Element
Air Pollution Control District (APCD)

Arroyo Grande Public Works Department	Director Paul Karp
Arroyo Grande Planning Department	Linda Stonier
Arroyo Grande Police Department	Chief James Clark
Arroyo Grande Fire Department	Chief Doug Hamp

Caltrans, District 5, San Luis Obispo	Gary Arthur Fred Miller
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Grover City	Director Tom Sullivan Todd Graph
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Lucia Mar School District	Administrative Staff Transportation Director Chairperson Sonia Wagner
Parking and Traffic Commission	

Pismo Beach	Rich Sneider
San Luis Obispo City	Candice Havens

SLO Area Coordinating Council	Director Ron DeCarli Dave Bryant
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SLO County Engineering Department	
SLO County Planning Department	Warren Hoag
SLO County Superintendent of Schools	Staff

Bicycle Handbook, Arroyo Grande
Bikecentennial
Geometric Design of Highways and Streets
Highway Design Manual, Caltrans
Highway Research Board, Highway Capacity Manual, 1965

Morro Bay Scenic Highway Element
Omni Means Report, 1985, Traffic Way
Pismo Beach Bikeway
SCAT Bus Schedule
San Diego Area Council, 1984, Traffic Generation Rates

San Luis Obispo City, Circulation Element
San Luis Obispo Regional Transportation Plan, 1985, Draft (Final)
Traffic Volume Data, 1984, 1985, Caltrans (Computerized)
Traffic Volume Data, 1985, Arroyo Grande

ARROYO GRANDE PLANNING DEPARTMENT

Participating Staff

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Nancy Iversen, Associate Planner, Project Manager

Peter Rosen, Associate Planner

Shawn Bowers, Word Processor

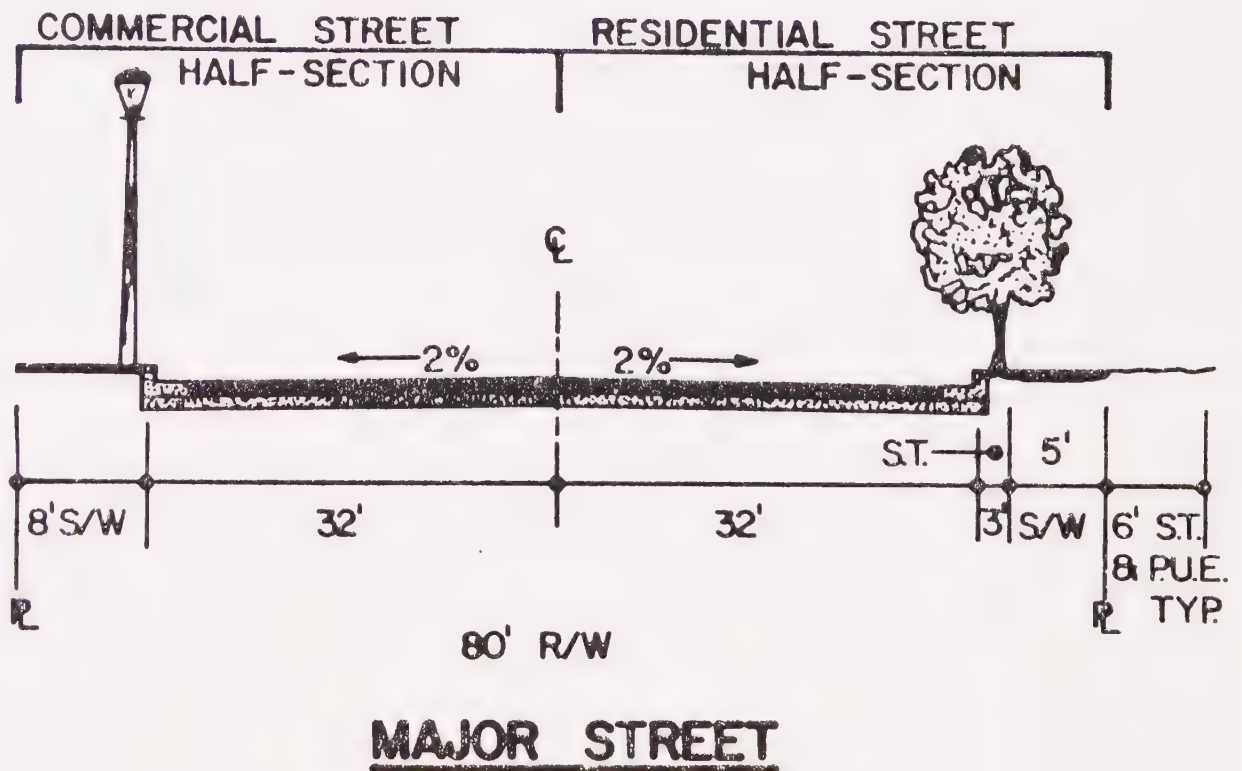
Scott Spierling, Graphics

Pearl Phinney, Support Staff



TECHNICAL APPENDIX 3.0

Appendix 3.1
City Standards



CITY OF ARROYO GRANDE



APPROVED
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DATE 9-13-81

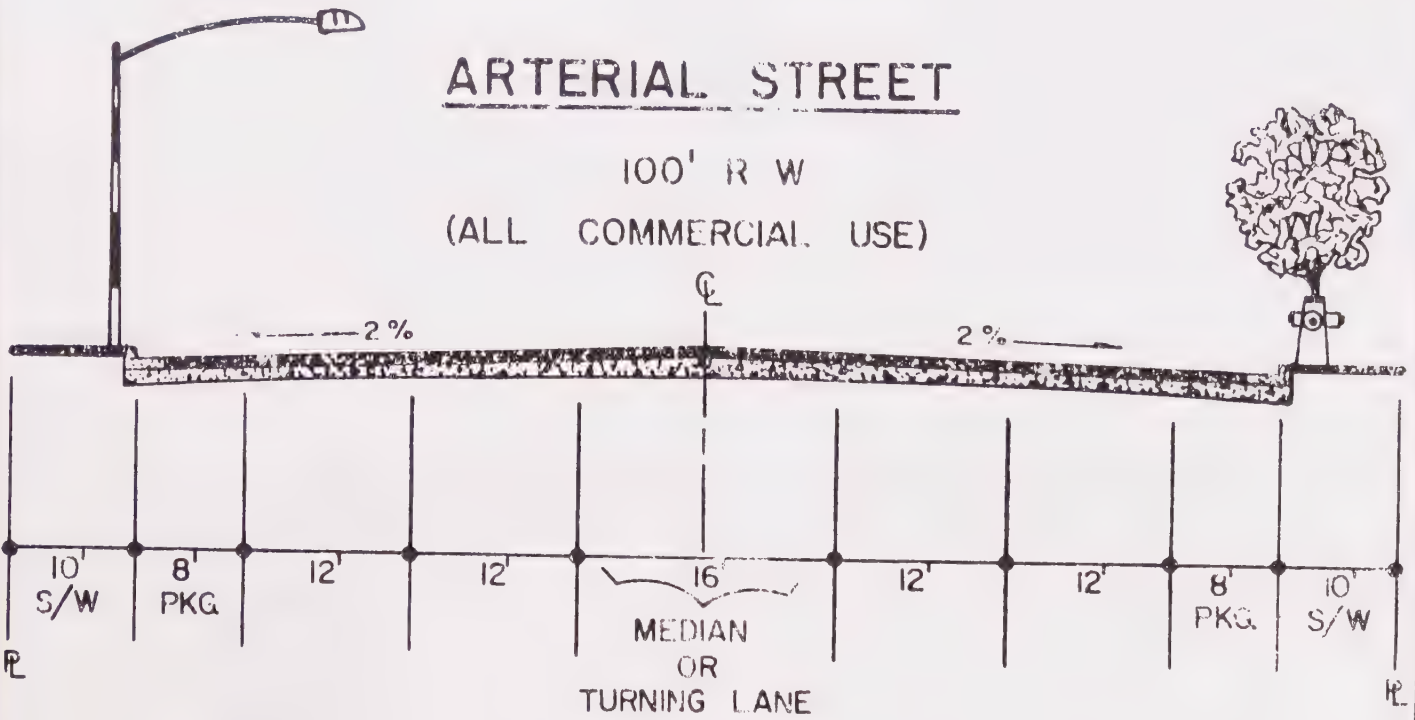
MAJOR STREET

REVISION	APPR	DATE
S.T. & S/W Dimensions altered	R/R	2-2-81

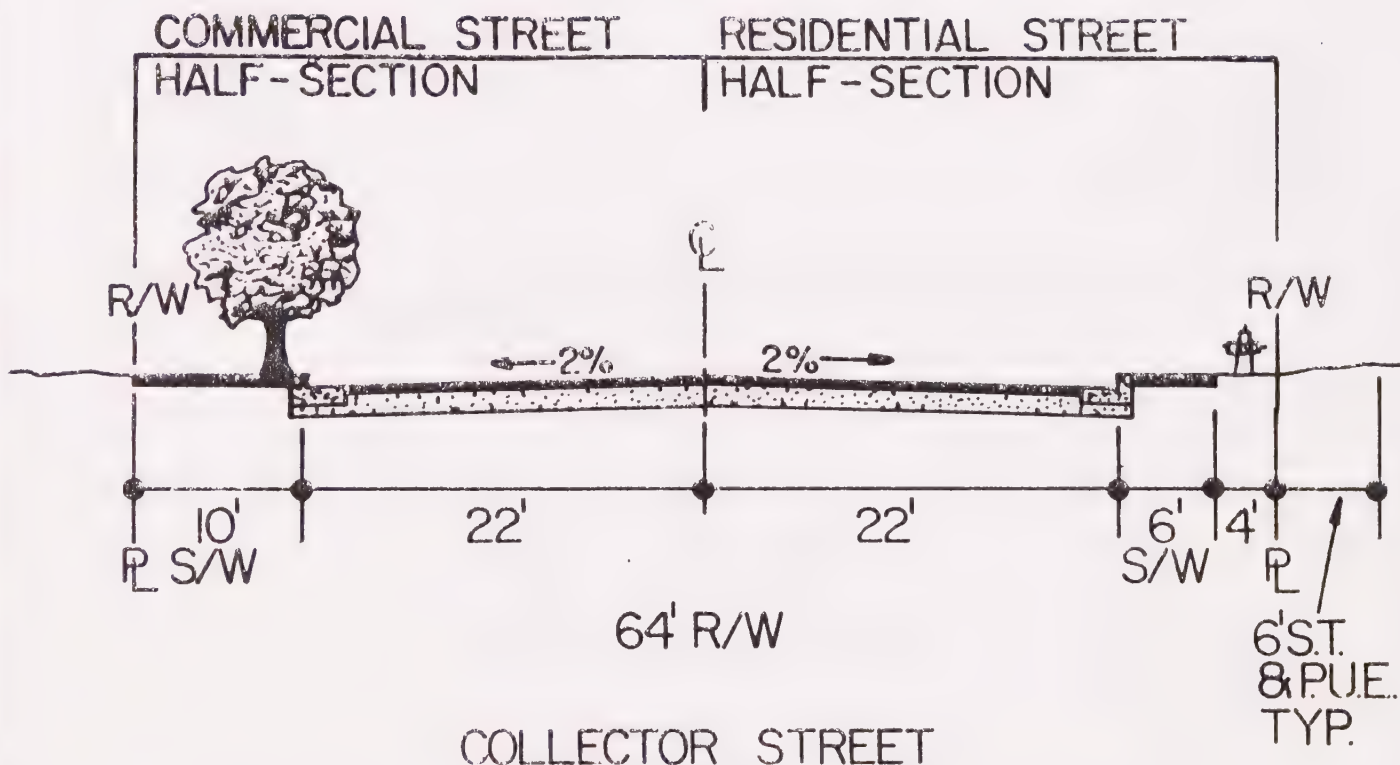
AI

ARTERIAL STREET

100' R W
(ALL COMMERCIAL USE)



City of Arroyo Grande, California P.O. Box 550, Arroyo Grande, Ca. 93420; Phone 805 489-1303		REVISION _____ _____ _____		APPR _____ _____	DATE _____ _____
APPROVED  DATE 1-3-13-01		ARTERIAL STREET			A2



NOTE: FINISH GRADE AT CENTERLINE OF ROAD TO LIE 1" BELOW TOP OF CURB.

CITY OF ARROYO GRANDE

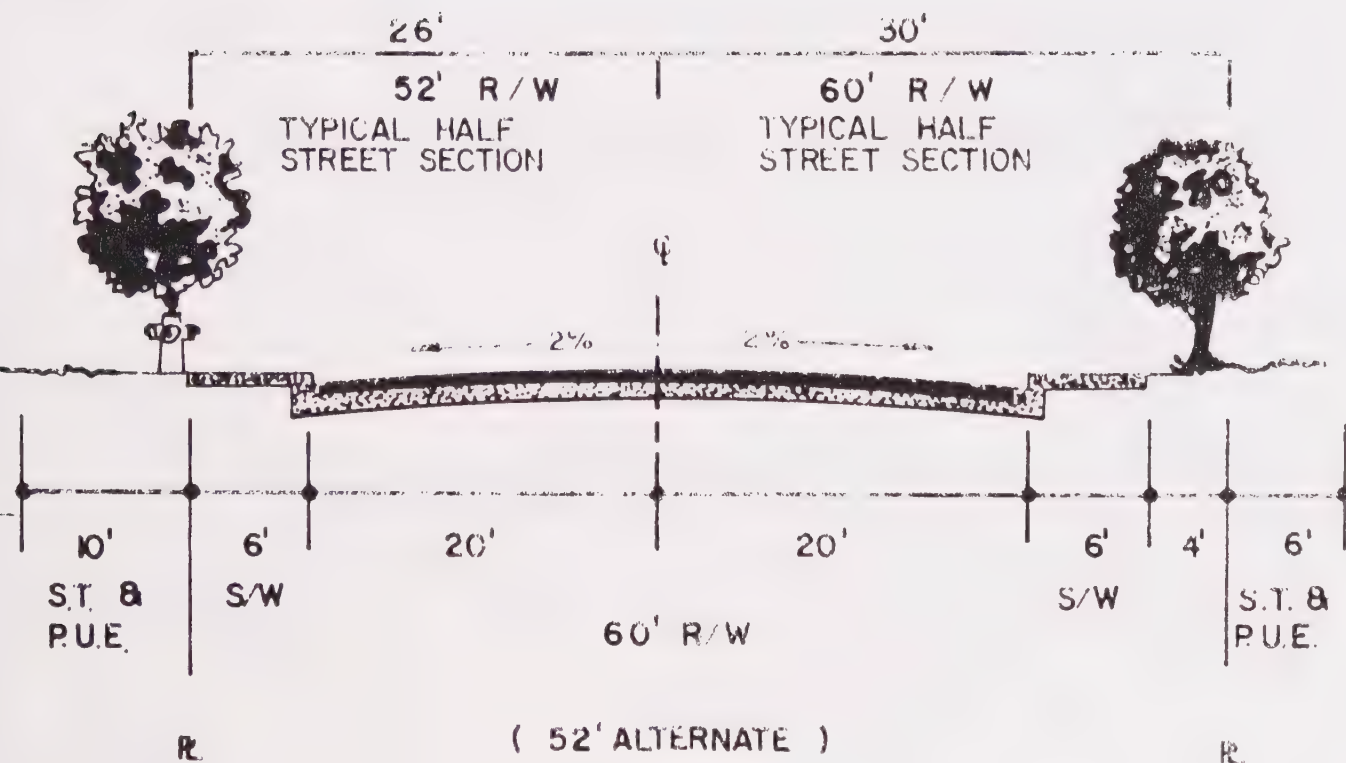
REVISION	APPR	DATE
ADD NOTE	R/L	11-8-81

APPROVED

 DATE 5-15-81

COLLECTOR STREET

A3



LOCAL STREET

NOTE: FINISH GRADE AT CENTERLINE OF ROAD TO BE 1" BELOW TOP OF CURB.

CITY OF ARROYO GRANDE

REVISION

ADD NOTE

APPR

DATE

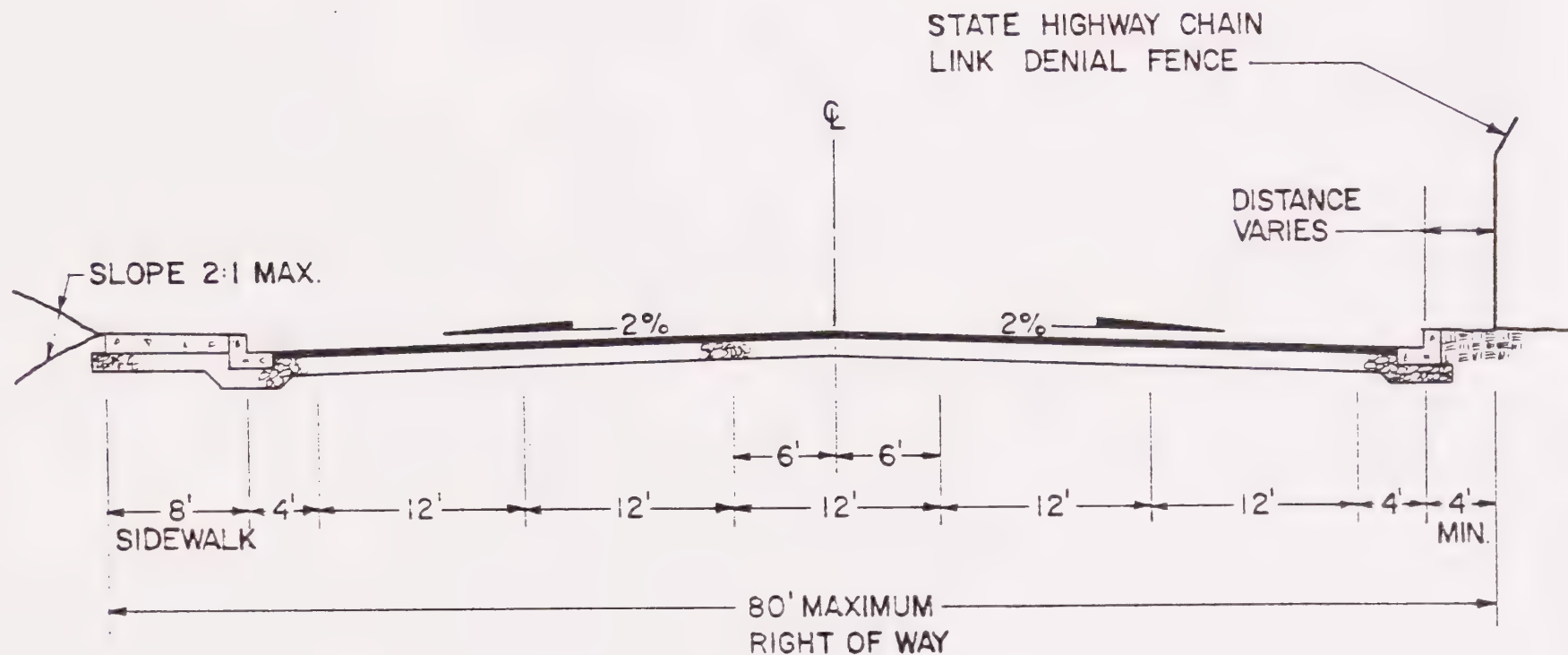
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DATE 3-12-81

LOCAL STREET

A4



WEST BRANCH STREET

BRIEF GUIDE TO VEHICULAR TRAFFIC GENERATION RATES

INTRODUCTION

In the rapidly developing San Diego area the need to evaluate impacts of new development on our transportation facilities has created the demand for a guide which would summarize the daily vehicular traffic generation rates for specific land uses. The first guide was published in November 1981 by the San Diego Association of Governments (SANDAG). With its emphasis on the relationship of trips to different land use, acreage and building square footage, it provided a quick reference for transportation engineers and planners alike. The guide further encouraged the use of more thorough and detailed trip generation documents such as the I.T.E. Trip Generation report, the San Diego Traffic Generators manual, and various CALTRANS (California Department of Transportation) studies.

Soon to follow was the demand for specific data that could be used to determine the traffic impacts of various land uses during the "commuter" peak hours, along with the in-out traffic split estimates. This information was desired to help estimate future levels of service at intersections and on roadway links. To meet this need the guide has been updated (March 1985) to include both commuter A.M. and P.M. peak hour percentages of the total weekday trip generation rate.

HOW TO USE THE BRIEF GUIDE

The Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region is divided into three headings: (1) Land Use, (2) Estimated Weekday Vehicle Trip Generation Rate, and (3) Highest Peak Hour %. Land use is broken down into nineteen categories and 75 sub-groups. A trip is defined here as a single (one-direction) vehicle movement with either the origin or destination inside the study site. The generation rate is the estimated sum of those trips that occur within a typical 24-hour weekday period. Highest peak hour is defined as the highest one hour of commuter traffic between 7

and 9 AM and between 4 and 6 PM. The traffic direction split (IN:OUT ratio) is presented in parentheses after the peak hour percentage. For example, a listing of 8% (6:4) means that 8% of the total weekday trip generation from a particular land use site is occurring during the peak hour, within which 6 vehicles enter for every 4 vehicles that leave the site.

Much of the data listed are estimates based on a limited sample. Therefore, the peak hour percentages and directional splits should be used carefully. Such factors as multiple working shifts for industrial land uses will cause peak hour splits to become more equal. Furthermore, San Diego's generation rates may be slightly higher than other areas due to its low (4%) work trip transit mode split.

LOCAL USE

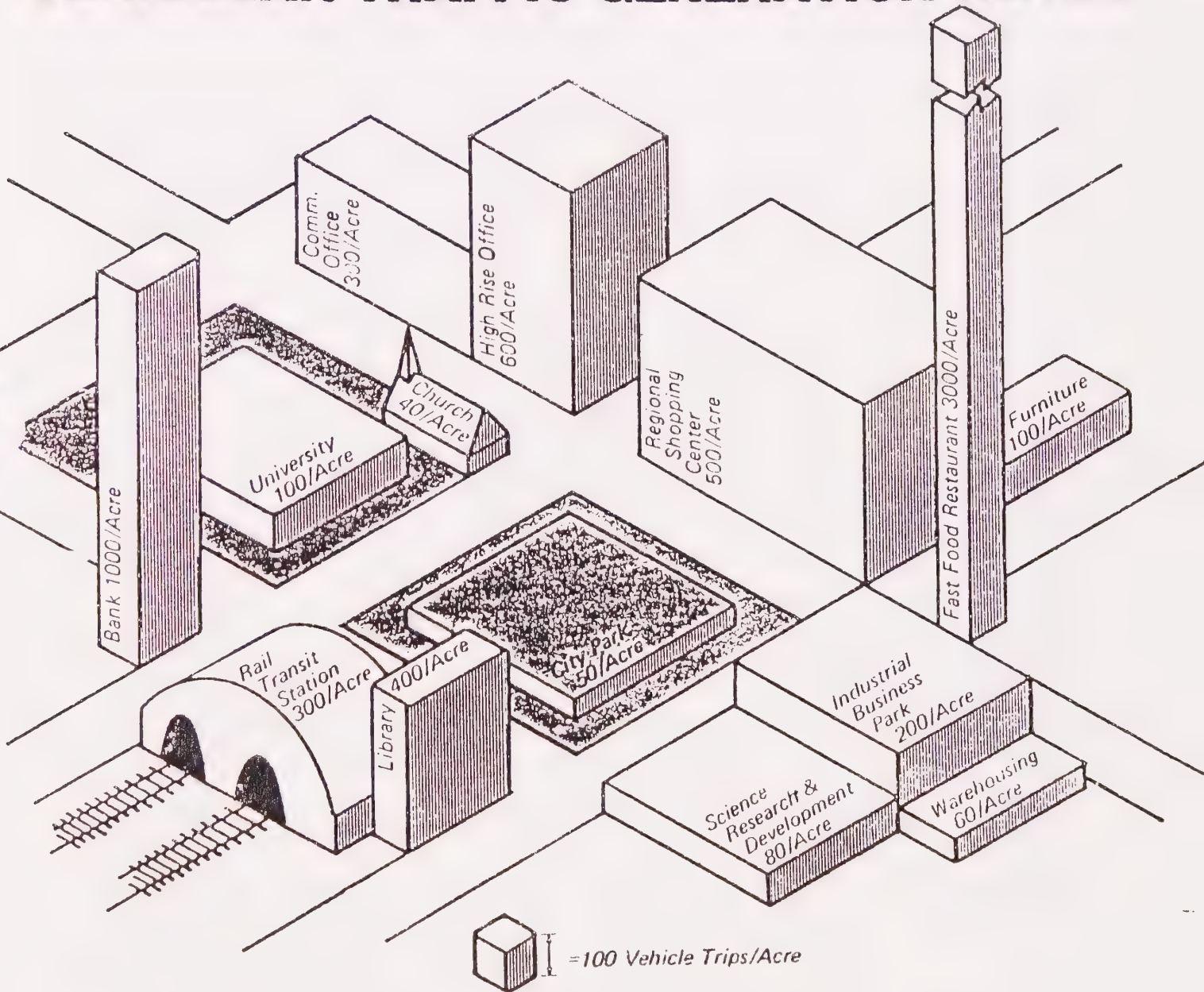
Consultants and municipalities use these data to analyze the Circulation Element of General or Community Plans, environmental (traffic) impacts reviews, and land use amendments or considerations. The Cities of Escondido, Oceanside, and San Marcos use traffic generation data as the basis for traffic impact fees, collected at the building permit stage for thoroughfare, bridge, and/or traffic signal construction. The data are also particularly applicable to computer modeling, which has become an integral part of transportation planning. SANDAG recently has done traffic modeling for the Cities of Carlsbad, Chula Vista, Poway, San Diego, Santee, and the County of San Diego.

Although traffic generation rates vary throughout the country, this Brief Guide will provide a valuable tool and reference for anyone involved in the traffic/transportation planning process. Prior to using these rates, however, you should always check with local jurisdictions for the preferred or applicable rates. The Brief Guide also is included as an addendum to the San Diego Traffic Generator manual. For more information concerning the manual, contact the SANDAG at 619/236-5300. SourcePoint, SANDAG's nonprofit corporation, also provides a wide variety of transportation consulting services. For more information, contact SourcePoint at 619/236-5353.

INFO is a publication presenting statistical information produced as part of the San Diego Association of Governments' overall planning program. The series, published bi-monthly, contains current estimates and forecasts of population, housing, employment, land use and other planning data, as well as occasional reports on subjects of general interest. This report was financed with federal funds from the U.S. Department of Transportation, state funds from CALTRANS and local funds from SANDAG member jurisdictions.

INFO

BRIEF GUIDE TO VEHICULAR TRAFFIC GENERATION RATES



SAN DIEGO ASSOCIATION OF GOVERNMENTS

MEMBER CITIES: CITIES OF CARLSBAD, CHULA VISTA, CORONADO, DEL MAR, EL CAJON, ESCONDIDO, IMPERIAL BEACH, LA MESA, LEMON GROVE, NATIONAL CITY, OCEANSIDE, POWAY, SAN DIEGO, SAN MARCOS, SANTEE, VISTA AND THE COUNTY OF SAN DIEGO.
ADVISORY/LIAISON MEMBERS: CA. DEPT. OF TRANSPORTATION/U.S. DEPT. OF DEFENSE/TIJUANA, BAJA CALIFORNIA NORTE

SourcePoint A CHARTERED NONPROFIT CORPORATION OF SANDAG

BRIEF GUIDE OF VEHICULAR TRAFFIC GENERATION RATES FOR THE SAN DIEGO REGION

MARCH 1985

NOTE: This list only represents a guide of average, or estimated, traffic generation rates for land uses (emphasis on acreage and building square footage) in the San Diego region. These rates are subject to change as future documentation becomes available, or as local sources are updated. For more specific information regarding traffic data and trip rates, please refer to the San Diego Traffic Generators manual. Always check with local jurisdictions for their preferred or applicable rates.

LAND USE	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE	HIGHEST PEAK HOUR % (plus IN:OUT ratio)	
		Between 7-9 A.M.	Between 4-6 P.M.
Agriculture (Open Space)	2/acre**		
Airports			
Commercial	12/acre, 100/flight, 70/1000 sq. ft.**	6% (6:4)	7% (5:5)
General Aviation	4/acre, 2/flight, 6/based aircraft*		
Heliports	100/acre**		
Automobile			
Car Wash	900/site, 600/acre**	4% (5:5)	9% (5:5)
Gasoline	750/station, 130/pump**	6% (5:5)	12% (5:5)
Repair & Sales (Dealer)	60/1000 sq. ft., 400/acre, 60/service stall*	8% (6:4)	10% (4:6)
Banking			
Walk-in Bank	200/1000 sq. ft., 1000/acre**	3% (7:3)	10% (4:6)
w/Drive-through	300(150 one-way)/lane**	3%	13%
Savings & Loan	60/1000 sq. ft., 600/acre**	2%	9%
w/Drive-through	100 (50 one-way)/lane**		
Cemeteries	6/acre*		
Church (or Synagogue)	15/1000 sq. ft., 40/acre** (triple rates for Sunday, or days of assembly)	4% (8:2)	8% (5:5)
Commercial/Retail Centers			
Regional Shopping Centers (More than 30 acres, more than 300,000 sq. ft., w/usually 2+ major stores)	50/1000 sq. ft., 500/acre*	2% (7:3)	9% (5:5)
Community Shopping Center (10-30 acres, 100,000-300,000 sq. ft., w/usually 1 major store and detached restaurant)	70/1000 sq. ft., 700/acre**	3% (6:4)	10% (5:5)
Neighborhood Shopping Center (Less than 10 acres, less than 100,000 sq. ft., w/usually grocery store & drug store)	120/1000 sq. ft., 1200/acre**	4% (6:4)	11% (5:5)
Commercial Shops (also strip commercial)	40/1000 sq. ft., 400/acre*	3% (6:4)	9% (5:5)
Grocery Store	150/1000 sq. ft., 1500/acre**	3% (7:3)	11% (5:5)
Convenience Market	500/1000 sq. ft.**	8% (5:5)	8% (5:5)
Discount	70/1000 sq. ft., 700/acre**	2% (6:4)	10% (5:5)
Furniture Store	6/1000 sq. ft., 100/acre**	4% (6:4)	9% (5:5)
Lumber Store	30/1000 sq. ft., 200/acre**	7% (6:4)	9% (5:5)
Hardware/Paint Store	60/1000 sq. ft., 600/acre**	3% (6:4)	9% (5:5)
Garden Nursery	60/1000 sq. ft., 120/acre**	3% (6:4)	10% (5:5)
Education			
University (4 years)	2.5/student, 100/acre*	10% (9:1)	9% (3:7)
Junior College (2 years)	1.5/student, 80/acre*	12% (9:1)	8% (3:7)
High School	1.5/student, 50/acre*	20% (8:2)	14% (3:7)
Middle/Junior High	1.0/student, 40/acre**	24% (7:3)	7% (3:7)
Elementary	1.4/student, 60/acre**	26% (6:4)	5% (3:7)
Hospitals			
General	20/bed, 20/1000 sq. ft., 200/acre*	9% (8:2)	11% (3:7)
Convalescent/Nursing	3/bed**	5%	8%

(Over)

Industrial			
Commercial Included/Business Park	16/1000 sq. ft., 260/acre*	12% (8:2)	12% (2:8)
No Commercial	10/1000 sq. ft., 120/acre*	14% (8:2)	15% (2:8)
Manufacturing /Assembly	4/1000 sq. ft., 80/acre**	20% (9:1)	20% (1:9)
Warehousing	5/1000 sq. ft., 60/acre**	15% (9:1)	20% (1:9)
Storage	3/1000 sq. ft., 0.3/vault, 60/acre**	5% (5:5)	10% (5:5)
Science Research & Development	8/1000 sq. ft., 80/acre*	16% (9:1)	14% (1:9)
Administration/Corporate Headquarters	7/1000 sq. ft., 100/acre**	18% (9:1)	16% (1:9)
Library			
	40/1000 sq. ft., 400/acre**	2% (7:3)	10% (5:5)
Lodging			
Hotel			
w/convention facilities/commercial	10/room, 500/acre**	6% (6:4)	8% (5:5)
Motel	10/room, 200/acre**	8% (4:6)	9% (6:4)
Resort Hotel	10/room, 100/acre**	4% (6:4)	7% (4:6)
Military			
	2.5/military & civilian personnel*	9% (9:1)	10% (2:8)
Offices			
Standard Commercial Office (less than 100,000 sq. ft.)	20/1000 sq. ft., 360/acre*	14% (9:1)	13% (2:8)
Large (high rise) Commercial Office (more than 100,000 sq. ft./6 stories)	17/1000 sq. ft., 600/acre*	13% (9:1)	14% (2:8)
Government (Civic Center)	30/1000 sq. ft.**	9% (9:1)	12% (3:7)
Post Office	150/1000 sq. ft., **	7% (5:5)	8% (5:5)
Department of Motor Vehicles	180/1000 sq. ft., 900/acre**	6% (6:4)	11% (4:6)
Medical	90/1000 sq. ft., 800/acre*	4% (8:2)	10% (3:7)
Parks			
City (developed)	50/acre*		
Regional (undeveloped)	5/acre*	4%	8%
Neighborhood	5/acre**		
Amusement (Theme)	80/acre, 130/acre (summer only)**		
San Diego Zoo	115/acre*		
Sea World	60/acre*		
Recreation			
Beach, Ocean or Bay	600/1000 ft. shoreline, 60/acre*		11% (4:6)
Beach, Lake (fresh water)	50/1000 ft. shoreline, 5/acre*		
Bowling Center	30/lane, 300/acre**	7% (7:3)	10% (4:6)
Campground	6/campsite**	4%	8%
Golf Course	8/acre, 600/course**	6% (8:2)	9% (3:7)
Marinas	4/berth*	3%	11% (3:7)
Racquetball/Health Club	40/1000 sq. ft., 300/acre, 40/court*	4% (6:4)	9% (6:4)
Tennis Courts	30/court**	4%	11% (5:5)
Sports Facilities			
Outdoor Stadium	50/acre, 0.2/seat		
Indoor Arena	30/acre, 0.1/seat*		
Racetrack	40/acre, 0.6/seat*		
Theaters (multiplex)	80/1000 sq. ft., 1.5/seat*	0.3%	8% (7:3)
Residential			
Single Family Detached (average 4 DU/acre)	10/dwelling unit*	8% (2:8)	10% (7:2)
Condominium (or any multi-family less than 20 DU/acre)	5/dwelling unit*	8% (2:8)	10% (7:3)
Apartments (or any multi-family units more than 20 DU/acre)	5/dwelling unit*	8% (2:8)	11% (7:3)
Mobile Home	5/dwelling unit, 40/acre*	9% (3:7)	11% (6:4)
Retirement Community	4/dwelling unit**		
Rural Estate	12/dwelling unit**		
Restaurants			
Quality	100/1000 sq. ft., 500/acre**	1% (6:4)	8% (7:3)
Sit down, high turnover	300/1000 sq. ft., 1200/acre**	6% (5:5)	6% (6:4)
Fast Food (w/drive through)	700/1000 sq. ft., 3000/acre**	4% (6:4)	8% (5:5)
Transportation Facilities			
Bus Depot	25/1000 sq. ft.**		
Truck Terminal	10/1000 sq. ft., 60/acre**	9% (4:6)	3% (5:5)
Waterport	1/0/berth, 12/acre**		
Transit Station (Rail)	300/acre**	14% (7:3)	15% (3:7)

* Primary source: San Diego Traffic Generators

**Other sources: ITE Trip Generation Report, Trip Generation Rates (Orange County Environment Agency) various SANDAG & CALTRANS studies, reports, and estimates

Appendix 3.3

Level-Of-Service "C" Capacities (Average Daily Trips)

Roadway Type	Peak Hour	24 Hours
4-lane divided arterial (left turn lane)	2,400	24,000
4-lane undivided arterial	2,000	20,000
2-lane arterial	1,400	14,000
2-lane collector	1,000	10,000

Source: Highway Research Board, "Highway Capacity Manual," 1965.

Appendix 3.4

Senate Bill 244, 1975

Senate Bill 244 (Statutes of 1975) established the California Bikeways Act. The Act included provisions requiring the State Department of Transportation to establish "recommended minimum general design criteria for the development, planning, and construction of bikeways..." (reference: Section 2374, Streets and Highways Code) and "uniform specification and symbols for signs, markers and traffic control devices to control bicycle traffic..." (reference: Section 2375, Streets and Highways Code.) Section 2376 of the Streets and Highways Code requires all local and regional agencies, having responsibility for the development of bikeways, to comply with "all minimum safety design criteria and uniform specifications and symbols for signs, markers and traffic control devices established by the Department..." Such design criteria and specifications are contained in CALTRANS' Highway Design Manual.

Appendix 3.5

Proposed Scenic Routes

Designation of scenic routes implies a judgement of the visual qualities as special and worthy of attention. Because many factors contribute to the scenic character, a set of criteria is needed to measure these factors and the scenic importance of specific routes. Such criteria may be used for evaluating visual resources of both the natural and urban environment. Those generally applicable to the natural environment follow:

1. The abundance and variety of forms and textures
2. The richness and range of colors
3. The distance and extent of views
4. The uniqueness of scenic qualities

The criteria for assessing view values on roadways in the urban environment include the following considerations:

1. The compatibility of surrounding structures
2. The compatibility of development with the topography
3. The uniqueness of the City's image, including urban corridors
4. The definition and enhancement of the City's image
5. The preservation of public views

Scenic routes in Arroyo Grande are:

Highway 101	Guasna Road
Branch Mill Road	James Way
E. Branch Mill Road	Noyes Road
Camino Mercado	Oak Park Boulevard
Carpenter Canyon	Printz Road
Grand Avenue	Rancho Parkway
Fair Oaks Avenue to	Corbett Canyon
Arroyo Grande Creek	

Bikeway Planning and Design

HIGHWAY DESIGN MANUAL

7-1001.1

July 1, 1983

BIKEWAY PLANNING AND DESIGN (7-1000)

General Information (7-1001)

7-1001.1 Introduction

Increased bicycle use for commuting and recreation can provide enjoyment, improve public health, and reduce air pollution, traffic congestion, energy consumption and the cost of personal transportation. The many benefits of bicycling, both personal and to society, provide the justification for local, regional and State government to give increased attention to the bicycle as a legitimate mode of transportation. It is in the State's interest to encourage development and improvement of facilities to accommodate safe and efficient bicycle use.

Senate Bill 244 (Statutes of 1975) established the California Bikeways Act. The Act included provisions requiring the State Department of Transportation to establish "recommended minimum general design criteria for the development, planning, and construction of bikeways..." (Section 2374, Streets and Highways Code) and "uniform specifications and symbols for signs, markers and traffic control devices to control bicycle traffic..." (Section 2375, Streets and Highways Code). Section 2376 of the Streets and Highways Code requires all local and regional agencies, having responsibility for the development of bikeways, to comply with "all minimum safety design criteria and uniform specifications and symbols for signs, markers and traffic control devices established by the Department..."

It is recognized that in certain isolated instances, it may not be possible or feasible to meet the mandatory minimum safety design criteria, but that projects can be developed in a way as to not jeopardize the safety of bicyclists. Deviations from mandatory standards can be tolerated only where one of the following applies:

- (a) When a deviation is judged by the project proponent and the funding authority to be a safety equivalent (i.e., as good as or better than the mandatory standard).
- (b) When a lesser facility is judged by the project proponent and the funding authority not to jeopardize the safety of bicyclists. (The intent is to permit deviations for isolated sections

where mandatory standards cannot be met, but where mitigating action or other conditions are such that the lesser facility will not result in unsafe conditions.)

Deviations from mandatory standards shall be considered on a case-by-case basis, and the rationale clearly documented by the implementing agency and approved by the Office of Planning and Design Coordinator. It is not the intent that deviations be used for the purpose of permitting wholesale exemptions for substandard facilities (e.g., substandard width, or alignment, facilities which promote wrong-way travel, etc.).

It is recognized that the recommended and mandatory criteria do not cover all types of design details encountered in development of bikeways. Where details are not covered, appropriate engineering principles and judgment must be applied in providing for the safety and convenience of bicyclists.

7-1001.2 Definitions

"Bikeway" means all facilities that provide primarily for bicycle travel.

(1) *Class I Bikeway (Bike Path)*. Provides for bicycle travel on a right of way completely separated from any street or highway.

(2) *Class II Bikeway (Bike Lane)*. Provides a striped lane for one-way bike travel on a street or highway.

(3) *Class III Bikeway (Bike Route)*. Provides for shared use with pedestrian or motor vehicle traffic.

More detailed definitions are contained in Section 2373 of the Streets and Highways Code.

Appendix 7.7

Resolution Adopting the
Circulation Element

RESOLUTION NO. 1945

A RESOLUTION OF THE COUNCIL OF THE CITY OF ARROYO
GRANDE ADOPTING A REVISED CIRCULATION ELEMENT
OF THE GENERAL PLAN

WHEREAS, Section 65302 (b) of the California Government Code directs all cities and counties to prepare a General Plan Circulation Element; and

WHEREAS, the City has determined that it is appropriate and necessary to update and revise previous circulation plans adopted by the City; and

WHEREAS, the Planning Commission and City Council have held public hearings on a new Circulation Element in accordance with the California Government Code and General Plan Amendment regulations of the City; and

WHEREAS, the Planning Commission and City Council have considered public testimony and technical information prepared by staff covering goals, policies, and programs and including analysis of the City's street system, alternative forms of transportation, and a project implementation; and

WHEREAS, the City Council has considered alternative modes of travel aimed at encouraging the use of alternative forms of transportation such as bicycles, buses, car pools and walking; and

WHEREAS, the Circulation Element incorporates programs aimed at providing for adequate street maintenance while promoting the expanded use of alternative forms of transportation; and

WHEREAS, the City Council intends to reexamine the Circulation Element periodically to evaluate the effects of programs and to consider new information.

NOW THEREFORE BE IT RESOLVED BY the Council of the City of Arroyo Grande as follows:

- (1) The Circulation Element of the City of Arroyo Grande General Plan, as required by California Government Code Section 65302 (b) is adopted. The text of the said adopted element is attached hereto as Exhibit A;
- (2) The Planning Department shall publish and make available to the public said element and shall distribute copies to appropriate members of City government, to the California Office of Planning and Research, other appropriate agencies and local libraries;
- (3) The Circulation Element adopted and the master plan of Streets and Highways (1966) are rescinded;
- (4) The adoption of this element shall take effect thirty (30) days from the date of adoption of this resolution.

On motion of Council Member Gallagher , seconded by Council Member Moots and on the following roll call vote:

AYES: Mayor Smith and Council Members Gallagher, Johnson, Porter and Moots.

NOES: None.

ABSENT: None.

The foregoing resolution was passed and adopted this 11th day of March , 1986 .

RESOLUTION NO. 85-1063

A RESOLUTION OF THE PLANNING COMMISSION OF THE
CITY OF ARROYO GRANDE RECOMMENDING APPROVAL OF
OF THE CIRCULATION ELEMENT OF THE GENERAL PLAN.

WHEREAS, the City of Arroyo Grande has undertaken to prepare a revised Circulation Element in consideration of the community's economic, environmental, social and fiscal factors and community goals as set forth in the General Plan; and

WHEREAS, the Planning Commission has reviewed and considered the revised Circulation Element at their regular meetings of October 15, November 5, and November 19, 1985, and did solicit public comment upon such proposed revised Circulation Element at a duly noticed Public Hearing.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission of the City of Arroyo Grande does hereby recommend to the City Council adoption of the revised Circulation Element as amended.

On motion by Commissioner Flores, seconded by Commissioner Carr, and by the following roll call vote, to wit:

AYES: Commissioners Flores, Moore, Carr and Chairman Gerrish

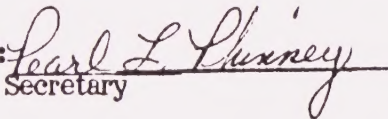
NOES: None

ABSTAIN: Commissioner Olsen

ABSENT: Commissioners Boggess and Soto

the foregoing Resolution was adopted this 19th day of November 1985.

ATTEST:


Secretary


Chairman

MEMORANDUM FOR THE RECORD
SUBJECT: [Illegible]

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